# Adapting a Culturally Grounded Diabetes Prevention Program to a Family Diabetes Prevention Program

by

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ABSTRACT

Introduction: The incidence of type 2 diabetes (T2D) in youth is projected to increase through 2060, especially in minority youth. Every Little Step Counts (ELSC) has demonstrated efficacy in reducing T2D risk factors in Latino youth. Documenting the adaptation of ELSC to a family diabetes prevention program (FDPP) could support future adaptation and scaling of FDPPs.

Purpose: To describe the process that guided the adaptation of a culturally grounded evidenced-based DPP tailored to Latino families, with the aim of using the Framework for Reporting Adaptations and Modifications-Enhanced (FRAME) to classify adaptations.

Methods/Design: The approach that guided the adaptation involved community-based participatory research (CBPR) and phases commonly used to adapt health interventions. Inductive and deductive content analysis guided by the FRAME was conducted on data collected throughout the phases to identify and classify adaptations. Data was then triangulated with the entities involved in the adaptation, analyzed to determine the frequency and proportion of adaptations across the FRAME categories and levels, and cross tabulated.

Results: A total of N=66 adaptations were identified. Adaptations occurred with the highest frequency during the grant preparation and after the pilot study. Most adaptations were led by both the academic institution and community partners. Content modifications were most common. Prominent reasons for adaptation included organization/setting time constraints and integrating community partners' and interventionists' feedback.

Discussion: Study results align with the CBPR approach that guided the adaptation and the ELSC core tenet of integrating community partnerships throughout all aspects of the intervention. To efficiently track adaptations, consensus as to what constitutes varying levels of adaptation granularity (i.e., macro, meso, micro) is needed. While tracking adaptations can be time and resource intensive, tracking adaptations may support the development of strategies to tie adaptations to outcomes.

Conclusion: It is critical to determine when adaptations are needed to avoid a "culture of adaptation hyperactivity". There is an opportunity to analyze past and future ELSC adaptations to better understand the intervention's core tenets and the relationship between adaptations and outcomes. Future ELSC adaptations would benefit from considering how to incorporate feedback from diverse stakeholders and populations in preparation for scaling.

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# CHAPTER 1

## INTRODUCTION

The incidence of type 2 diabetes mellitus (T2DM) in youth is projected to increase by 673% through 2060, especially in minority youth.[1] According to the Center for Disease Control's National Diabetes Statistics Report[2], 38% of the United States (US) population over the age of 18 has prediabetes and 11.3% has been diagnosed with diabetes. During the last few years, 18% of the US adolescent population has been diagnosed with prediabetes.[3] The onset of T2DM in Latino youth is increasing in prevalence[4], and compared to non-Hispanic whites, Hispanic adults have a higher incidence of T2DM.[2]

An intensive lifestyle intervention including weight reduction and physical activity is the cornerstone for preventing T2DM in high-risk adults.[5] This is based upon findings from the Diabetes Prevention Program Research Group (DPP Research Group), which demonstrated that intensive lifestyle interventions reduced the risk of T2DM by 58% in adults with prediabetes.[5] To implement the lifestyle intervention on a larger scale, the National Diabetes Prevention Program (NDPP) was established through the CDC as a strategy to scale the lifestyle intervention.[6] While the results from DPP Research Group demonstrated that the lifestyle intervention was effective in achieving weight loss and reducing the incidence of T2DM, the effectiveness of the NDPP with ethnic and racial minority populations has been lower, often leading to higher dropout rates.[7]

Since the findings from the DPP, multiple adaptations of the program have been created to fit the needs of adults from culturally diverse populations.[8] Adaptations of the DPP have included modifications to the delivery strategy[9], culture[9], population and

setting.[10] Adaptations of the DPP for Latinos have focused on either adults or youth at high-risk of developing T2DM[8,10–14]; with adaptations occurring to the method of delivery (e.g., digital),[9] or to better meet the needs of a culture[11] and/or socioeconomic status[10] of the population.

Family-based interventions are considered the gold standard in obesity prevention and treatment in youth.[15] *Familismo* (familism) is a cultural construct that has been integrated into health promotion programs for Latino families[16] and is an important piece to consider when designing family-based interventions for the Latino population.

While diabetes prevention programs have focused on youth and adults[5,8,10,12,14], because T2DM is often seen in members of the same family[17], interventions focused on the family unit could be more impactful. Diabetes prevention efforts that focus on the family are limited, however, studies have found that there is a strong willingness in families to participate in DPPs[18] and that they can be impactful in promoting psychosocial health and communication in families.[12]

Every Little Step Counts (ELSC), a culturally grounded, community-based diabetes prevention program, has demonstrated feasibility, acceptability, and efficacy in reducing risk factors for the development of T2DM and improving weight-specific quality of life (QoL) in Latino youth.[12–14,19] A team of researchers, clinicians, and community partners have collaborated in numerous adaptations of the ELSC to better understand and meet the needs of the local Latino population and context.[12–14,19] In 2015, ELSC was adapted to ¡Viva Maryvale!, a 12-week family focused DPP.[12] This study demonstrated the feasibility and acceptability of the culturally grounded DPP for Latino families with children between the ages of 8-12.[12] Until 2015, each adaptation of the

ELSC had prioritized the health of Latino children and/or adolescents.[12–14,19] While families have been encouraged to participate in ELSC, the evaluation of outcomes has been primarily on Latino adolescents.[12–14,19] The most recent adaptation for an efficacy trial of the ELSC, was tailored to Latino adolescents between the ages of 12-16 with obesity and prediabetes.[14] Upon completion of this trial, the team of researchers and community partners identified the opportunity to further leverage familial and cultural factors, to focus on the health of the family system and assess outcomes in the family unit.

The ELSC was selected by the team of researchers and community partners as the intervention to be adapted for Latino families due to intervention's core tenets and functions aligning with the current needs of the local Latino community, its long history with proven efficacy, and the extensive collaborative infrastructure that has been built to support the intervention. The adapted ELSC intervention, from here on referred to as the Family Diabetes Prevention Program (FDPP), will be implemented as part of a randomized control trial that will assess the intervention's efficacy among Latino families at high risk of developing T2DM.

Documenting the adaptation process of a DPP for Latino youth to the family system could help identify strategies to adapt family-based diabetes prevention programming and support the replication and scaling of adapted FDPPs. Multiple adaptation frameworks have been created to guide adaptations of evidence-based interventions[20], however, the efficacy adapted interventions on participant and intervention outcomes are limited.[20]

*Purpose of Study*

To describe the process that guided the adaptation of a culturally grounded evidenced-based diabetes prevention program tailored to Latino families.

*Research Aim*

To use the Framework for Reporting Adaptations and Modifications-Enhanced to describe the adaptation of a family-based diabetes prevention program.

*Definition of Terms*

- Latino (a): A person who is of Mexican or any other Latin American origin.
- Prediabetes: Blood sugar levels that are higher than normal, but not high enough to be considered T2DM.
- HbA1c: Average blood sugar levels during the last three months.
- Familism: A cultural value that emphasizes strong interpersonal relationships within the family system.
- Family Diabetes Prevention Model: A novel conceptual model to guide family-focused diabetes prevention, anchored by processes (engagement, cohesion, resilience, and empowerment) that unify families as a health-oriented system to enhance skills focused on increasing health behaviors to support improved health outcomes.
- Unifying Family Processes: The Unifying Family Processes consist of the key family processes: engagement, cohesion, resilience, and empowerment; found to be critical in improving health outcomes and behaviors in family-based interventions.

- Engagement: Interacting as a family, with other families, health educators, and the environment to take actions to improve the health of the family system.
- Cohesion: Strengthening bonds within families by decreasing conflict and prioritizing the health of the family system around a shared purpose and health goal.
- Resilience: Leveraging strengths, relationships, cultural values, and assets to respond to the pathogenic forces underpinning T2DM so that the family can flourish as a healthy system.
- Empowerment: Acquiring knowledge, skills, and capacity to identify and utilize resources to improve health and reduce diabetes risk.
- Family Unit: All family members residing in the same household (e.g., mother, father, son, daughter, cousin, grandma, grandpa, etc.).
- Adaptation Process: The phases and process that guided the adaptation from the ELSC to the FDPP.
- Phase: A phase (step) in the phases and processes that guided the adaptation (e.g., Deciding What Needs Adaptation: I, Interviewing the Community, Pilot Study, etc.).
- Adaptation/Modification: Used interchangeably and refers to any modifications or changes made to the intervention content, context, training, evaluation, and implementation/scale-up activities.
- Core Tenets and Functions: Key values and functions of the ELSC intervention
- Fidelity: The degree to which an intervention (particularly its core elements or functions) is delivered as intended.

# CHAPTER 2

# LITERATURE REVIEW

## Overview of Diabetes and Prediabetes in the Latino Population

According to the National Diabetes Statistics Report approximately 38% of the US population (96 million people) over the age of 18 have prediabetes[2] and 37.3 million have either diagnosed or undiagnosed diabetes.[2] Between 2005 and 2016 the prevalence of prediabetes in adolescents was 1 of 5, which translates to 18% of the adolescent population.[2] A US study projecting the prevalence of T2DM in those <20 years of age, projects that the number of youths with T2DM will increase from 48,000 in 2017 to 220,000 in 2060, a 69% increase.[1] If the increases in incidence continue, it is projected that the number of youths with T2DM will increase to 220,000, a 673% increase.[1] The onset of T2DM in Latino youth is increasing in prevalence[4], and compared to non-Hispanic whites, Hispanic adults have higher incidence of T2DM.[2] Previous studies have also found Latino youth to have more insulin resistance and obesity compared to other pediatric populations, both of which are risk factors for the development of T2DM.[21,22]

## Diabetes Prevention Programs

*The Diabetes Prevention Program Research Study*. Lifestyle intervention can prevent or delay the onset of T2DM among adults with prediabetes.[5] In a study conducted by the Diabetes Prevention Program Research Group[5], participants with elevated fasting and post-load plasma glucose levels were assigned to either a placebo, metformin, or a diabetes prevention program intensive lifestyle intervention (DPP). Participants in the DPP were given the goal of 7% weight loss and at least 150 minutes of physical activity

per week[5]. The participants in the study were followed for 2.8 years after the intervention. Those in the metformin group reduced their incidence of diabetes by 31% and those in the DPP reduced their incidence of diabetes by 58%.[5] The DPP was found to be more effective at reducing the risk of diabetes compared to Metformin.

The DPP intensive lifestyle intervention was created by a committee consisting of nutritionists, behavioral psychologists, exercise physiologists, and nurses.[23] The intervention included clear weight loss and physical activity goals (i.e., 7% of initial body weight, 150 minutes)[23]. While the content was delivered through a standardized curriculum, individuals were permitted to individualize their goals to work towards the overarching weight loss and physical activity goals[23]. Each participant was assigned a lifestyle coach (often a registered dietitian) who delivered the core and maintenance curriculum, motivated participants, and ensured all data was collected.[23] The first phase of the DPP was referred to as the "core phase" and included a 16-session core curriculum consisting of nutrition, physical activity, and self-management that lasted 30-60 minutes[23]. During the core phase, the DPP used an individual approach to treatment vs a group approach to individualize the intervention to diverse populations and participants with low literacy[23]. The 16 core sessions included a manual of operations for the lifestyle coaches, along with: participant weigh-ins; a review of participant records used for self-monitoring weight loss, calories, and physical activity minutes; strategies for problem-solving barriers to goals; the introduction of a new topic; and the development of new goals[23]. After the "core phase", the program transitioned to a flexible adherence/maintenance phase, where a session was delivered a minimum of once every two months[23]. During this phase, sessions were offered individually or in groups and

lasted 15 to 45 minutes. The sessions focused on self-monitoring and topics of most interest/concern to participants. Participants continued to weigh-in and track their calories, weight, and physical activity. The DPP also included voluntary supervised exercise sessions delivered twice a week; activities included group walks, community aerobic classes, and 1:1 personal training.[23] Since participants often experienced barriers to implementing lifestyle behaviors, Lifestyle Coaches assisted participants in problem solving strategies to barriers[23]. Each participant had the opportunity to select a "toolbox" strategy to support their adherence. Toolbox items included cookbooks, food vouchers, Slim-Fast or frozen food; $100 were allotted for each participant to spend on the toolbox strategies[23]. The DPP materials and strategies were also tailored to address ethnic diversity[23]. Lifestyle coaches were often the same ethnicity as the participants, and the curriculum was available in English and Spanish[23]. Foods and cooking methods noted in the curriculum were also tailored to diverse ethnicities[23]. The DPP consisted of local and national networks offering support to all organizations delivering the lifestyle intervention.[23]

*The National Diabetes Prevention Program*. In 2010, the National Diabetes Prevention Program (NDPP) was started as an initiative led by Centers for Disease Control and Prevention (CDC) to scale the implementation of diabetes prevention programming to address the nation's increasing rates of prediabetes and diabetes.[6] The NDPP is modeled after the DPP[24] and consists of key DPP aspects: a standardized curriculum with a core and maintenance phase; a lifestyle coach; self-monitoring with individualized participant goals to promote 5-7% weight loss and 150 minutes of weekly physical activity; and the self-monitoring of calorie consumption, weight loss, and

physical activity.[25] Fidelity to the program is ensured by the CDC's Diabetes Prevention Recognition Program (DPRP).[25] The CDC provides the opportunity for public and private organizations to offer the NDPP program in their organizations and become "CDC recognized" through the DPRP by meeting the CDC recognition standards.[25] Participants that are most successful in NDPP have the highest retention rates.[7] However, retention among participants enrolled in the NDPP is often lower in racial and ethnic minorities and immigrants.[7] While the NDPP was shown to be effective in achieving weight loss, the effectiveness with ethnic and racial minority populations has been lower, leading to higher dropout rates.[7]

*Adaptations to Diabetes Prevention Programs.* Since the development of the DPP, multiple adaptations of the program have been created to fit the needs of adults from diverse populations.[9–11,26–28]

As a strategy to support weight loss in Hispanic women, the DPP was adapted to *De Por Vida*, a culturally tailored weight loss intervention for Hispanic women.[11]. The cultural adaptation of the intervention was informed by a focus group with Mexican American women.[11] The cultural adaptations included modifications to who delivered the intervention (i.e., Hispanic female interventionists), who attended the intervention (i.e., women only), materials, cultural aspects (e.g., incorporation of Mexican food traditions and health beliefs), and literacy (i.e., food journal for low literacy). Results from the pilot study demonstrated high feasibility with modest weight loss and BMI reductions.[11]

To engage men from low income and minority groups in an adaptation of the NDPP, researchers sought feedback through community focus groups and an advisory panel consisting of Latino and African American males.[10] From the results, the

intervention was adapted to include male-only participants and coaches, content of interest to minority men (i.e., erectile dysfunction and diabetes), accessible settings, exercise resources, and monetary incentives[10]. Pilot study outcomes included a mean weight loss of 3.8%, with improvements in depressive symptoms, eating, exercise, and health.[10]

To culturally tailor a DPP to address obesity in Latinos in a primary care setting[9], researchers used a 2-step adaptation process including: (1) a patient-centered approach consisting of interviews with Latino patients and stakeholders, and (2) a pretest of the intervention with a patient advisory board. The study found that the original intervention aligned with the cultural values of the population.[9] However, to further align with the participants' cultural values, the intervention was adapted to incorporate family and community support with modifications to: (1) include family members at different points of the intervention, (2) incorporate smartphone applications to allow for participant and coach support, and (3) include an easy, affordable, culturally appropriate meal at each session.[9]

A pilot of a "flex" version of the NDPP[26], involved a patient-centered approach that allowed participants to set individually tailored flexible goals that were modified each week as needed. The pilot results found that those in the NDPP flex group had a greater reduction in HbA1c and normoglycemia at follow-up than those in the NDPP.[26] These findings were in the absence of the 5-7% weight loss achieved in the DPP.[26] These results are promising for DPPs tailored to Latino families with minimal emphasis on weight loss tailored, since studies have shown that a higher body weight is often preferred and accepted in the Latino culture.[29]

A diabetes prevention program adapted to address diabetes prevention efforts at the family and community level, The EPIC Kids[27], demonstrated feasibility with improvements in child BMI-z scores. Adaptations to the intervention included: (1) content modifications, with the addition of interactive activities to engage youth and families; along with (2) contextual modifications to a hybrid intervention via mobile devices.[27]

A study comparing a faith-based and family-focused DPP tailored to Pacific Islanders[28], found no differences in weight loss between the adaptations. Significant changes were seen in blood pressure reductions in the family focused DPP.[28] The design of the family-focused DPP was informed by a community-based participatory research community-academic partnership.[30] Community partners, leaders, and an academic institution participated in focus groups and informant interviews.[30] The results provided insight into the community's health concerns, needs, and resources to address obesity, along with support in the data interpretation.[28] The family-based DPP was adapted to include: less sessions, due to time constraints; family/community activities to support goals; topics on eating healthy on a budget; topics on communicating effectively with medical providers; (5) individual delivery (vs. group delivery); (6) delivery by a health professional (vs. a community peer educator); (7) verbiage to reflect the linguistics and culture of the population.[30]

Since T2DM is often seen in multiple members of the same family[17], interventions focused on the family unit could be more impactful. Diabetes prevention efforts that focus on the family are limited, however, studies have found that there is a

strong willingness in families to participate in diabetes prevention programs[18] and that they can be impactful in promoting psychosocial health and communication in families.[12]

**Every Little Step Counts Program**

ELSC was created by a non-profit community organization, The Society of St. Vincent de Paul (SVdP), as a strategy to better meet the needs of their Latino patient population (Y. Konopken, RD, CDE, CPT oral communication, March 2022). The SVdP Medical Clinic is part of SVdP, whose mission is to feed, clothe, house, and heal vulnerable populations in the Phoenix metropolitan area.[31] The SVdP Medical Clinic provides free medical services to underserved and uninsured populations.[32]

In the year 2000, the medical director of the SVdP Medical Clinic identified high rates of prediabetes and T2DM in their Latino patients (Y. Konopken, RD, CDE, CPT oral communication, March 2022). To identify strategies to address the high rates of prediabetes and T2DM in the native language of the patients and in a culturally tailored manner, the medical director sought the expertise of a bilingual, bicultural Latina Registered Dietitian and Diabetes Educator. Soon after, the Family Diabetes Program was founded at SVdP with the mission "to improve the overall health and well-being of our community through disease management and prevention education services that focus on long-term healthy lifestyle changes."[33] The services included Medical Nutrition Therapy and diabetes care and education delivered by bilingual and bicultural Latino dietitians, diabetes educators, and health educators. As part of the program's philosophy, all services were available in Spanish and English, integrated Latino cultural values, and were delivered by individuals from the Latino community (NOTE: In 2018, the Family

Diabetes Program was renamed the Ivy Center for Family Wellness (ICFW) and will be referred to from here on out as the ICFW).

With increasing rates of T2DM, it soon became clear to the ICFW that there was a need to provide diabetes prevention services in a structured program; however, a program focused on addressing diabetes risk factors in Latino families was not available at the time (Y. Konopken, RD, CDE, CPT oral communication, March 2022). To inform the development of the ELSC, the ICFW completed focus groups with Latino families who had children experiencing overweight. The goal of the focus groups was to assess the perceptions and priorities of Latino families regarding their child's weight (E. Lish, RDN, CDCES, oral communication, April 2022). The results from the focus group, along with evidence-based standards of care in diabetes from the American Diabetes Association and the Dietary Guidelines for Americans were used to inform the development of ELSC (E. Lish, RDN, CDCES, written communication, June 2023). In 2004, Every Little Step Counts was developed by the ICFW with the goal of preventing early onset of T2DM and other chronic conditions in children identified as being at high risk for cardiometabolic disease. ELSC aimed to provide classes, medical visits, nutrition, and behavior management follow-ups, while maintaining the cultural integrity and philosophy of the ICFW (E. Lish, RDN, CDCES, oral communication, April 2022).

ELSC sessions were created to deliver education and skills to children at high risk of T2DM and their families; and to decrease the risk of T2DM and cardiovascular disease (E. Lish, RDN, CDCES, oral communication, April 2022). ELSC sessions were originally delivered at the ICFW. The nutrition and physical activity components of ELSC were delivered by the ICFW staff. The SVdP Medical Clinic identified children

and families at high risk of T2DM and served as the referral source to ELSC. An additional referral system to the ICFW was established in 2005 from the Phoenix School District through School Based Health Centers. This system created space for additional partnerships, which allowed for the implementation of ELSC in a local children's museum, schools within the Phoenix School District, a county hospital, and community clinics in the Phoenix metropolitan area (Y. Konopken, RD, CDE, CPT oral communication, March 2022).

In 2006, during a community coalition meeting addressing diabetes in Arizona, the director of the SVdP Medical Clinic and an academic researcher from the academic institution, Arizona State University (ASU), met for the first time (Y. Konopken, RD, CDE, CPT oral communication, March 2022). After many conversations and meetings that developed rapport, trust, and an understanding of how a collaboration between SVdP staff and the researcher could be mutually beneficial, both parties recognized the unique skills and perspectives which ultimately led to a partnership. The collaboration with the academic institution added scientific rigor and formal evaluation expertise that provided the capacity for research that would ultimately establish the ELSC intervention as efficacious. The initial project was a retrospective chart review of the data that the ICFW had been collecting on patients to assess the impact of the ELSC program on cardiometabolic health and behavior changes.[34,35] During this time, the ELSC continued to be delivered in the community and refined through feedback from families who participated in the ELSC, health educators delivering the program, and community partners involved (Y. Konopken, RD, CDE, CPT oral communication, March 2022).

In 2007, the ICFW partnered with the Valley of Sun YMCA. The YMCA and ICFW identified that the ELSC aligned with the goals of the YMCA and the needs that the YMCA had identified in their Latino community (Y. Konopken, RD, CDE, CPT oral communication, March 2022). A YMCA director demonstrated interest in partnering with the ICFW and extending a free yearly YMCA membership to the children completing the ELSC. In 2008, the delivery location of the ELSC transitioned to the YMCA. The ICFW continued to deliver the nutrition and wellness classes; however, the YMCA physical activity trainers began delivering the physical activity sessions and adapted the physical activity component of the ELSC (E. Lish, RDN, CDCES, written communication, March 2022). The YMCA has continued to serve as the primary delivery site of the ELSC due to the number of centralized locations in areas with a high Latino population and its accessibility in the community.[12–14,19]

In 2009, the ICFW, YMCA, and the academic institution received funding from the National Institute on Minority Health and Health Disparities at NIH for a pilot study to assess the feasibility, acceptability, and preliminary efficacy of the ELSC intervention for Latino adolescents with overweight and obesity.[13] The results demonstrated that ELSC could be feasibly delivered under a rigorous research protocol, was acceptable to Latino adolescents with overweight and obesity and their parents, and showed preliminary efficacy for reducing T2DM risk factors measured as improvements in glucose tolerance and increases in insulin sensitivity.[13]

Based upon these preliminary results and experiences, in 2012, the team of researchers and community partners secured additional funding from National Institute on Minority Health and Health Disparities to conduct a randomized controlled trial for

Latino adolescents (14-16 years old) with obesity to test the short-term efficacy and long-term sustainability of the ELSC intervention compared to a comparison control group.[36] The ELSC intervention was adapted by the ICFW and delivered to Latino adolescents and their families.[36] The results of this trial indicated that youth in the ELSC could improve insulin sensitivity and increase weight-specific QoL 12 months after participating in the ELSC.[36]

In 2015, the ICFW, academic institution, and the YMCA partnered with Mountain Park Health Center (MPHC), a federally qualified health clinic in the Phoenix metropolitan area (E. Lish, RDN, CDCES, written communication, March 2022). MPHC expressed willingness in engaging MPHC providers in referring patients to the ELSC and expanding the capacity of the electronic medical record for recruitment and communication. The partners secured funding through the Arizona Department of Health Services to adapt ELSC for parents and children between the ages of 8-12, known as ¡Viva Maryvale!.[12] ¡Viva Maryvale! was delivered by the ICFW and YMCA at a local YMCA.[12] The lifestyle intervention consisted of nutrition education and behavioral skills training, delivered at a local YMCA.[12] Acceptability of the program was high with 83% of families completing the program with 91% attendance and 100% of the families stating they would recommend the program.[12] Results of this program included reductions of body fat in parents and children, HbA1c reductions in parents, and QoL improvements in both parents and children.[12] This study demonstrated the feasibility and acceptability of a culturally grounded diabetes prevention program for Latino families.[12]

In 2016, the partners received additional funding from the National Institute of Diabetes and Digestive and Kidney Diseases to conduct a randomized controlled trial to

assess the efficacy of the ELSC, a 6-month lifestyle program, in preventing diabetes in Latino youth between the ages of 12-16 with prediabetes, compared to a usual care control (UCC) group.[14] During this time, a Pediatric Endocrinologist from the Division of Endocrinology at Phoenix Children's Hospital (PCH) with expertise in clinical care for youth with obesity and prediabetes joined the research study team (M. Olson, MD, oral communication, April, 2022). Pediatric Endocrinologist's practice informed the design of the UCC group.[14] The UCC group consisted of two visits with the pediatric endocrinologist and a bilingual bicultural Latina registered dietitian to discuss diabetes risk factors and lifestyle changes.[14] This approach for the UCC group was used taking into consideration the ethics of randomizing youth with prediabetes to a true 'control' group.[14] Since the partnership with PCH, youth participating in this research identified to have diabetes have been referred to PCH for specialized care (M. Olson, MD, oral communication, April, 2022). PCH has also served as a referral site to Every Little Step Counts research study. Results from the study demonstrated that participants in both the intervention and UCC group experienced significant changes in glucose tolerance, with participants in the intervention experiencing improved weight-specific QoL compared to the UCC group.[14]

During the last two decades, the ELSC program has been refined, expanded, and disseminated through academic[12–14,19] and lay outlets and a version of the ELSC curriculum was included in the Centers for Medicare & Medicaid Services Office of Minority Health list of interventions that can contribute to reduce health disparities and lower costs.[37] Additional partners and stakeholders have joined the collaboration including researchers with expertise in areas of diabetes prevention trial design and

obesity-related QoL in youth, a licensed Clinical Psychologist, the Arizona Department of Health Services, and a Diabetes Advisory Board consisting of two board certified adult endocrinologists and a board-certified family practice physician (Y. Konopken, RD, CDE, CPT oral communication, March 2022).[14]

Since its inception, ELSC has been adapted numerous times to expand its contextual fit and better meet the needs of the community partners and the local Latino population.[12–14,19,36] The community partners, consultants, and the local Latino population have informed and guided the multiple adaptations of the ELSC. Although the ELSC has been adapted numerous times, the adaptation process has not yet been documented. The recording of the adaptation process of a culturally grounded evidenced-based diabetes prevention program, ELSC, to a FDPP tailored to Latino families could assist in identifying strategies to adapt family-based programming and ease the replication of adapted interventions.

**Understanding Every Little Step Counts**

*Theoretical Background.* ELSC is delivered through a lifestyle curriculum and is informed by Social Cognitive Theory[38] to enhance self-efficacy for making behavioral changes using several behavioral change strategies such as, observational learning, social support, goal setting, and self-monitoring. Throughout the intervention sessions, ELSC integrates SCT principles, including social context and the role of the person and environment in behavior change.[39] ELSC supports behavior regulation and self-monitoring through health-related goal setting.[39] The intervention provides social support by providing opportunities for participants to model behaviors demonstrated by the

facilitators, peers, family members, which may help participants feel more likely that they can confidently implement those behaviors, fostering self-efficacy in making behavior changes.[39]

ELSC is also informed by an expanded Eco developmental model[40] of factors affecting type 2 diabetes risk in racial and ethnic populations. The model considers variables within different levels (i.e., organic, individual, familial, community, sociocultural) to aid in the development of diabetes prevention interventions in racial/ethnic minority populations.[40] Guided by this approach the ELSC leverages community partnerships throughout all aspects of the intervention, from the design of the research study to test the efficacy of the intervention, to the delivery of the intervention in the community by community partners.[14,39]

*Core Tenets and Functions*. Table 1 outlines the core tenets and functions of the ELSC as proposed by the founders of the intervention and academic institution (Ivy Center for Family Wellness Staff oral communication, January 2023).[35,39]

| **ELSC Core Tenets and Functions** | |
|---|---|
| *Integrates Social Cognitive Theory principles* | Intervention sessions incorporate SCT principles, such as goal setting, self-monitoring, social support, and self-efficacy. |
| *Grounded in local culture and context* | • Delivered by bilingual, bicultural Latino staff.<br>• Accessible to the community<br>• Integrates Latino cultural values of trust, respect, and personalism (*confianza, respeto, personalismo)* in personal interactions between program staff and participants.<br>• Emphasizes the cultural value of familism.<br>• Traditional Latino foods are embraced and encouraged |

| | |
|---|---|
| *Family-based intervention* | • Focuses on the health of the family vs one individual.<br>• Encourages and facilitates attendance of all family and household members.<br>• Integrates family and household members in activities |
| *Weight-neutral approach* | Embraces all body types and emphasizes improved health outcomes overweight loss and food restriction |
| *Uses participant-centered care and language* | • Values participants' preferences, needs, and values.<br>• Ensures that participants' values' guide their decisions toward lifestyle changes.<br>• Considers social determinants of health in lifestyle change and provides resources as needed.<br>• Considers emotional, mental, spiritual, social and financial needs.<br>• Sessions are delivered in a mixture of English and Spanish to engage dual language households.<br>• Uses people-first, stigma-free language. |
| *Lifestyle education consisting of nutrition, wellness, and physical activity sessions* | Physical activity sessions<br>• 180 minutes of physical activity per week consisting of aerobic and resistance exercises that progress over time.<br>• Moderate to vigorous activities eliciting:<br>o Heart rate of at least 150 beats/minute in children<br>o Rate of perceived exertion of 5 to 7 on a 10-point scale in adults<br>Nutrition sessions<br>• Led by registered dietitians and health educators trained in the facilitation of lifestyle education.<br>• Integration of current evidence-based nutrition guidelines:<br>o Curriculum integrates Academy of Nutrition and Dietetics, American Diabetes Association, and Dietary Guidelines for Americans<br>Wellness sessions<br>• Led by registered dietitians and health educators. |

| | |
|---|---|
| | • Focused on topics to bring awareness to self-esteem, self-knowledge, self-knowledge, and anxieties.<br>• Participants learn strategies to listen to body-talk, how to stay grounded, self-nurture, and relaxation techniques. |
| *Integrates community partnerships* | Leverages community partnerships throughout all aspects of the intervention. |
| *Free of monetary cost to participants* | All sessions and materials are available to participants free of monetary cost. |

**Table 1.** *ELSC Core Tenets and Functions*

**Strategies and Frameworks for Adapting Interventions**

Previous approaches taken to adapt the DPP have consisted of focus groups with the priority populations, family panels, expert consultations, interviews, fidelity observations, and the assessment of feasibility and acceptability.[8,10–12,18] A progress report of cultural adaptations of behavioral health interventions conducted by Barrera et al. organized the cultural adaptation of programs into five stages: (1) information gathering, (2) preliminary design, (3) preliminary testing, (4) refinement, and (5) and final trial.[41] Through a scoping study, Escoffery and colleagues defined 11 key adaptation steps to adapt public health interventions based on 13 adaptation frameworks: (1) Assess community, (2) Understand the Intervention, (3) Select intervention, (4) Consult with experts, (5) Consult with stakeholders, (6) Decide what needs adaptation, (7) Adapt the original program, (8) Train staff, (9) Test the adapted materials, (10) Implement, and (11) Evaluate.[20] Adaptations have also occurred in stages.[42] Sit and colleagues adapted a digital mental health intervention using four stages: (1) stage setting and expert consultation, (2) preliminary content adaptation, (3) iterative content adaptation with

community members; (4) finalized adaptation with community feedback meetings; interviews and focus groups.[42] An adaptation of the DPP to engage men consisted of four phases: (1) focus groups and community leader discussion, advisory panel participation and adaptation of the NDPP curriculum, coach training, and (4) pilot study implementation.[10]

**A Framework for Reporting Adaptations and Modifications to Interventions**

An expanded framework for reporting adaptations and modifications to evidence-based interventions (FRAME) was developed by Stirman et al. as a method for characterizing adaptations to interventions.[43] This framework can be found in Figure 1.

Using the FRAME categories adaptations can be classified as follows: (1) when and how the modification was made, (2) was the modification planned/proactive or unplanned/reactive, (3) who decided to modify or adapt, (4) what was modified, (5) at what level of delivery was the modification made, (6) type of content modification, (7) the modifications relationship to the original intervention's fidelity, (8) the reason for the modification, (a) intent or goal of the modification and/or (b) contextual factors that informed the modification.[43] The paragraphs below will describe the categories for adaptation classification according to the FRAME.[43]

*When and How the Modification Was Made.* Modifications to an intervention can occur at any point during the planning, implementation, scale-up, or the sustainment phase.[43] Specifying when the modifications occurred can provide a background to the origin of the modification.[43]

*Was the Modification Planned/Proactive or Unplanned/Reactive.* Modifications may also be planned/unplanned or reactive/active.[43] Proactive modifications occur systematically and take place as early as possible before the implementation.[43] Reactive modifications are less systematic than planned modifications and occur in an unplanned manner during or after the implementation, usually due to unforeseen circumstances.[43]

*Who Decided to Modify or Adapt.* Specifying the individual that decided on the modification can provide more detail on the reasons for modification and the level of impact the modification may have [43] Modifications to the intervention may be made reactively by the intervention team due to participant behavior in the classroom, which may impact outcomes.[43]

*What Was Modified.* Understanding what was modified, can give more details regarding modifications to the context, training/evaluation, and content.[43] Contextual modifications include changes to the way the entire intervention is delivered (e.g., changes to setting, format, and personnel).[43] Modifications to the training and evaluation process are changes to how staff are trained or how the intervention is evaluated.[43]

*Type of Content Modification.* Content modifications include changes to the procedures, material, or changes that impact how the intervention is delivered (e.g., 90 vs 60-minute classes, 20 vs. 25 sessions).[43] Modifications to the content can occur in a variety of ways. FRAME contains 14 possible classifications for content modifications, ranging from lengthening to adding elements to the intervention.[43]

*At What Level of Delivery Was the Modification Made.* Modifications to interventions may occur at different levels (e.g., individual, cohort, organization).[43] The level of delivery specifies for whom or what was the modification made.[43] Classifying at

what level an intervention occurs can help identify if changes are made at the individual level or on a broader scale.[43]

*Modifications Relationship to the Original Intervention's Fidelity.* Modifications may be classified as either fidelity consistent or fidelity inconsistent.[43] Fidelity refers to the degree that the intervention's core elements or functions are delivered as intended.[43] Fidelity consistent modifications stay true to intervention's core elements or functions, while fidelity inconsistent modifications deviate from the core elements and functions.[43]

*Reason for the Modification.* Changes to an intervention can be a result of the sociopolitical environment, and/or related to the needs of the organization, provider, or recipients.[43] The intent or goal of the modification and/or contextual factors that informed the modification can provide a better understanding about the context surrounding the modifications and their potential impact on outcomes.[43]

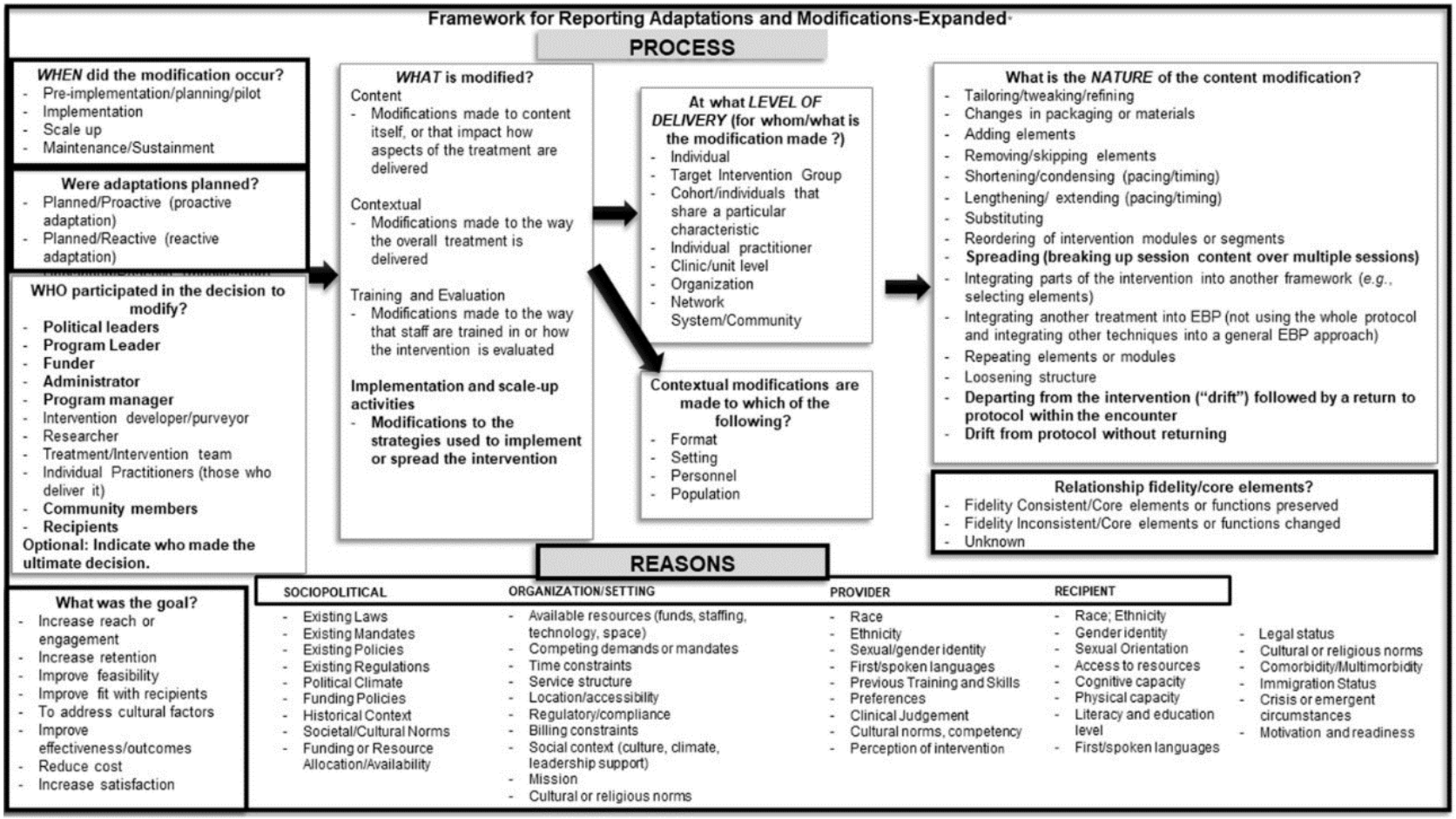



**Figure 1.** *FRAME. Framework for Reporting Adaptations and Modifications-Enhanced*[43]

## Cultural Adaptations

Socioecological models that assess determinants of risk for T2DM consider not only the role of the individual, but also relationships, community, and sociocultural systems.[40,44] An expanded Eco developmental model of factors affecting type 2 diabetes, considers various variables within different systems levels (e.g., organic, individual, familial, community, sociocultural) to aid in the development of diabetes prevention interventions in racial/ethnic minority populations.[40] The familial level explores the relationship patterns from the dyad (e.g., husband and wife) to the extended family systems, such as children and close relatives, and support for health, food preferences, exercise habits and activities, and differential acculturation.[40]

Tailoring interventions to cultural and ethnic minorities has been shown to lead to improved health outcomes and access.[45] Health interventions culturally tailored to racial and ethnic minorities have incorporated sociocultural variables such as beliefs, values, norms, and behaviors.[46] In racial and ethnic minority populations values related to interpersonal relationships consist of familism, trust, respect, and personal interaction.[47] Education for the Latino population has involved *familismo* (familism), which has been found to be protective for health in Latino families.[16]

*Familism.* Familism is a multidimensional dynamic construct and has been defined in numerous ways. Familism involves the beliefs and attitudes within the family system and has been seen as a source of support among Latino families.[48] Familism beliefs have been found to play a role in physical and mental health of Latino populations.[49] The nature of familism has been found to be both negative and positive in health behaviors.[49] In diabetes management, familism has been significantly linked to

patient self-care behaviors.[50] In a study conducted by Fisher and colleagues, diabetes management was best in Hispanic families with structure and organization, clear gender roles, and those able to resolve differences regarding diabetes care.[50]

Behaviors that manifest from familism include "financial support, shared daily activities, shared living, shared child rearing, and immigration."[51] Calzada et al., refer to familism as a dynamic construct with costs and benefits.[51] Benefits that have been identified within shared living and daily activities include exposure to positive role models and social support (emotional and instrumental).[51] Each of these components can be leveraged at the familial level of the Eco developmental Model in Diabetes Prevention[40] in support for health, food preferences, exercise habits and activities, and differential acculturation.

**Family-Based Interventions in Obesity and Diabetes Prevention**

Family-based interventions are considered the gold-standard in obesity prevention in youth.[15] A family-centered approach in diabetes care has been found to facilitate positive family functioning, specifically high family cohesion and low family conflict.[52] Common constructs within family system theories include cohesion and resilience.[15] Theories most commonly used in family health promotion include the social cognitive theory, ecological systems theory, family systems theory and theory of planned behavior.[53]

*Cohesion.* Cohesion has been described as a critical family process and defined as a "positive, supportive interaction among family members, closeness, and warmth."[54] In youth, family cohesion has been found to play a role in mental health[55], child conduct

disorder[56], depression, antisocial behavior, and delinquency.[54] In Mexican American and European American parents, family cohesion is strongly related to nurturing behaviors, such as active listening, warmth, responsiveness, and positive parent involvement.[57]

The Circumplex Model consists of three key concepts describing family functioning: cohesion, flexibility, and communication.[58] Within the model cohesion is defined as, "the emotional bonding that family members have toward one another."[58] This model focuses on a balance of the three concepts, and hypothesizes that a balance in cohesion and flexibility leads to healthy family functioning, while unbalanced cohesion and flexibility can lead to problems in family functioning.[58]

*Resilience.* Interventions with an emphasis on building resilience in families and children have improved outcomes by focusing on collaborative goal setting[59], problem solving[59,60], and tailoring to family strengths.[59–61] Family resilience has been defined as:

> A path a family follows as it adapts and prospers in the face of stress, both in the present and over time. Resilient families positively respond to these conditions in unique ways, depending on the context, developmental level, the interactive combination of risk and protective factors, and the family's shared outlook.[62]

Ethnic identity has shown to be an important factor in resilience for Latino families.[59] A framework to enhance resilience in Latino families involves familism, *personalismo*, belief systems, cultural social support, social and economic resources, communication/problem-solving, among other components.[59]

*Engagement.* Engagement in assessing the efficacy of preventative interventions has been considered a multi-faceted construct.[63] The association of program attendance

with improved outcomes has varied across studies.[63] Active engagement has been associated with improved outcomes in evidence-based interventions.[64]

In a study conducted on women of childbearing age, engagement in a diabetes prevention program was associated with motivation, perceived weight loss, and supportive relationships in the program.[65] Participants who dropped from the study expressed confusion about the program's relevance and aim, lack of connection to the participants/coaches, and barriers to attendance (e.g., lack of childcare, lack of transportation, health issues, and stress of being weighed in front of others).

In a review of mental health treatment programs four approaches were found to be effective in improving family engagement and retention: (1) family systems approach, (2) enhancing family support and coping, (3), brief early treatment engagement discussions, and (4) motivational interviewing.[66]

*Empowerment.* Empowerment has been defined as "a process where individuals learn to see a closer correspondence between their goals and a sense of how to achieve them, and a relationship between their efforts and life outcomes."[67] Empowerment has been used as part of preventive, chronic disease management, and in family centered interventions.[67]

A third rendition of the Chronic Care Model developed for the prevention of obesity and its associated comorbidities contains family and individual empowerment as its guiding principle.[68] The Chronic Care Model has been shown to be promising in improving health outcomes.[69] A quasi-experimental study that incorporated the Empowerment Theory and the Family Ecological Model in a childhood obesity prevention found a significant increase in parent's resource empowerment specific to

their child's body weight, physical activity, and diet, as well as a parent's efficacy to support healthy lifestyle behaviors.[70] Youth empowerment has been shown to significantly influence adolescent self-efficacy, perceptions for healthy food choices, healthy eating, attitudes regarding physical activity, and motivations for health.[71] The Family-Centered Empowerment Model consists of four steps: (1) increasing knowledge level through education sessions, (2) using educational materials, (3) questions and answers, and (4) lecture.[72] A Family-Centered Empowerment Model was found to decrease burden of care in parents of children affected by cancer.[73]

# CHAPTER 3

# METHODS

The methodology that guided the adaptation of the ELSC to the FDPP will be described as the adaptation occurred in preparation for implementation. The approach included phases and processes commonly used to adapt health-based interventions[20], community-based participatory research[74], and quantitative and qualitative data, however, this thesis does not include mixed methods data analysis. The methodology that guided the adaptation from the ELSC to the FDPP is described in the next few pages.

## Phases and Processes Guiding Adaptation

*Overview*. The FDPP curriculum was adapted from evidence-based curricula developed for Latino adolescents with obesity and prediabetes called ELSC.[12,14] The adaptation process was informed by a scoping study of frameworks for adapting public health interventions.[20] The key phases and processes used to guide the adaptation of the ELSC included: a *Community-Based Participatory Research (CBPR) Approach, Deciding What Needs Adaptation, Interviewing the Community, Adapting the Curriculum, Pilot Study, Staff Training, Implementation,* and *Evaluation.*

The phases and processes used to guide the adaptation are depicted in Figure 2. A CBPR approach was integrated throughout the adaptation process in order to include all ELSC partners equitably, while acknowledging the strengths that each partner brings to address risk factors associated with T2DM in the Latino community. In the scoping study of frameworks for adapting public health interventions[20] *Consult with Experts, Consult*

*with Stakeholders,* and *Assess the Community* are noted as key in intervention adaptation. Throughout the adaptation of the ELSC, these three phases occurred as an iterative process to further refine the adapted curriculum. For the adaptation of the ELSC, these three phases were consolidated under the *Community-Based Participatory Research Approach*. The phase *Assess the Community* was also noted as a separate phase and renamed to *Interviewing the Community* to better reflect how the prioritized population was involved in informing the adaptation of the intervention.

For the purpose of this thesis, only the methodology used to guide the adaptation of the nutrition and wellness component of the ELSC will be discussed. Modifications to the physical activity curriculum are out of the scope of this thesis and for this reason will not be addressed. The final phases of adaptation *Implementation* and *Evaluation* remain in progress and are beyond the scope of this thesis. Each phase and process used to guide the adaptation will be discussed in detail throughout the methodology.

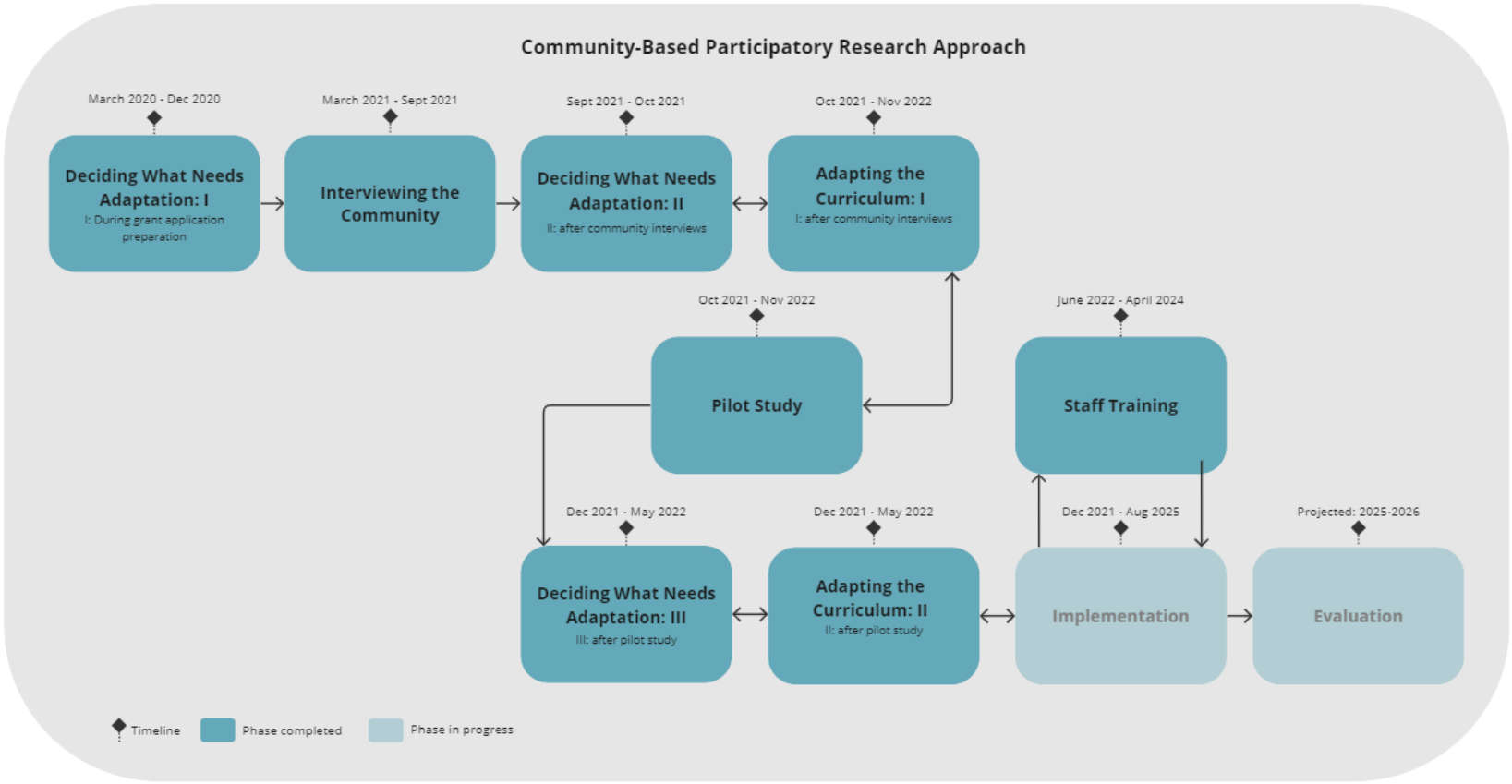



**Figure 2.** *Phases and Processes Guiding Adaptation*

**A Community-Based Participatory Research Approach**

The completion of the phases that guided the adaptation was made possible through the institutional and community partnerships that have been built throughout the last two decades of the ELSC research studies.[12,14,19,34,36,39] See Table 2. for a list of the entities involved in the ELSC research study and a description of their role throughout the adaptation process.

Throughout each phase and process that guided the adaptation of the ELSC to the FDPP, community partners and stakeholders have collaborated to move the adaptation forward. The contributions of each entity to the adaptation will be described throughout the thesis.

| Entity | Title/Name | Role During the Adaptation |
|---|---|---|
| Academic Institution | Arizona State University | Provided scientific expertise in diabetes prevention, intervention adaptation and evaluation, and research study design. Informed the adaptation of the intervention and led the research study to test the efficacy of the intervention. |
| Community Wellness and Diabetes Clinic | St. Vincent de Paul, Ivy Center for Family Wellness (ICFW) | Founders of the intervention. Adapted and delivered the nutrition/wellness sessions. Trained bilingual bicultural Latino Registered Dietitians and health educators to deliver the nutrition and wellness sessions. Referral source for the research study testing the adapted intervention. |
| YMCA | Valley of the Sun YMCA | Served as the delivery site for the adapted pilot and intervention. Identified branches for implementation of the |

| | | |
|---|---|---|
| | | intervention. The organization provided a gym membership incentive to the study participants. Led the adaptation of the physical activity curriculum. Staff delivered the physical activity sessions. |
| Medical Clinics and Community Organizations | Society of St. Vincent de Paul, Phoenix Children's Hospital, St. Joseph's Hospital and Medical Center, AZ Pediatric Care, Panda Pediatrics, Neighborhood Christian Clinic, Mountain Park Health Center, Native Health, Cigna West | Referral sites for the research study testing the adapted intervention. |
| Media | Segunda Mano Magazine (local Spanish-language magazine) | Referral source for the research study testing the adapted intervention. |
| Co-founders of Intervention | Dietitian/Diabetes Care and Education Specialist Consultants | Served as a consultant throughout the steps that guided the adaptation. |
| Founder of the Wellness Sessions | Licensed Clinical Psychologist Consultant | Adapted the wellness sessions for the family system. |
| Co-investigator | Washington State University | Provided scientific expertise in weight-specific quality of life. |
| Co-investigator | National Institute of Diabetes and Digestive and Kidney Diseases | Provided scientific expertise in diabetes prevention trial design. |
| Board Certified Pediatric Endocrinologist | Study Co-investigator and Study Physician | The provider's practice informed the design of the usual care control group in the research study testing the adapted intervention. |
| Diabetes Advisory Board | Two board certified adult endocrinologists and a board- | Comprised of diverse community organizations serving Latino families |

| | | |
|---|---|---|
| | certified family practice physician | |
| Diabetes Coalition | Arizona Diabetes Coalition | Conduit for dissemination of the adapted intervention to the community. |
| Licensed Clinical Social Worker | Consultant | Served as a behavioral health consultant for the adapted wellness sessions. Led the behavioral health training for the intervention facilitators. |

**Table 2.** *ELSC Community and Institutional Partners*

**Deciding What Needs Adaptation: I**

The ICFW and academic institution involved in the adaptation has over a decade of experience in the understanding of the theoretical background, core tenets and functions of the ELSC[12,14,19,34,36,39], however, to adapt for a new population (i.e., Latino families), these aspects were assessed and reevaluated for modifications in preparation for a grant application. To do this, the academic institution and ICFW met on a weekly basis to evaluate the needed modifications. During the meetings, modifications to the intervention content, context, evaluation, implementation, and scale up strategy were discussed. Meeting minutes were tracked by each entities' management team. The community partner (ICFW) and academic institution collaborated to identify the theory and processes to guide the adaptation to a family-based intervention.

*Literature Review.* A literature review was conducted by the academic institution to identify family processes critical in improving health outcomes and behaviors in family-based interventions. The identified family processes included engagement[63], empowerment,[68] cohesion[73], and resilience.[61] The academic institution presented the

family processes during the weekly meetings, where the community partner (ICFW) and academic institution worked to define the processes within the context of diabetes prevention in Latino families (see Table 3.).

| **Unifying Family Processes** | |
|---|---|
| *Process* | *Definition* |
| Engagement | Interacting as a family, with other families, health educators, and the environment to take actions to improve the health of the family system[63]. |
| Empowerment | Acquiring knowledge, skills, and capacity to identify and utilize. resources to improve health and reduce diabetes risk[68]. |
| Cohesion | Strengthening bonds within families by decreasing conflict and prioritizing the health of the family system around a shared purpose and health goal[73]. |
| Resilience | Leveraging strengths, relationships, cultural values, and assets in order to respond to the pathogenic forces underpinning T2D so that the family can flourish as a healthy system[61]. |

**Table 3.** *Unifying Family Processes*

*A Model to Guide the Adaptation.* The academic institution and community partner (ICFW) developed a Family Diabetes Prevention (FDP) Model (Figure 2.) during the weekly meetings. The FDP model was developed collaboratively and was guided by the literature review and family processes. The model consists of the family processes, which may promote skills (e.g., communication, role-modeling, goal setting, problem-solving, self-management, self-monitoring) to increase health behaviors (e.g., increased physical activity and improved eating behaviors) to support health outcomes (e.g., reduced risk of T2DM and increased QoL). The FDP Model was used to inform the adaptation of the ELSC to Latino families.

*Adapting the Curriculum Structure.* During the weekly meetings the academic institution and community partner (ICFW) reviewed the ELSC nutrition and wellness sessions and objectives and evaluated which aligned with the FDP Model. They identified

which sessions and objectives should be kept or removed from the curriculum based on how closely they related to the processes and skills in the FDP Model. New sessions and objectives related to the FDP Model skills and processes were proposed. The duration and frequency of classes was assessed based on the ICFW's experience delivering the intervention. Health educators and registered dietitians who had delivered past renditions of the ELSC proposed removing or adding elements of the intervention based on their extensive experience delivering the ELSC.


**Figure 3.** *Family Diabetes Prevention Model*

**Interviewing the Community: Understanding Family Processes in Latino Families**

After modifying the curriculum structure and aligning the ELSC curriculum content to the FDP Model, the academic institution conducted in-depth interviews with Latino families who had previously participated in the ELSC. The purpose of the interviews was to better understand how the family processes could be integrated into the family-based diabetes prevention curriculum to enhance the reach, diffusion, and impact of the intervention on the family system.

*Recruitment Strategy.* The academic institution invited 30 Latino families who participated in the previous ELSC, Preventing Diabetes in Latino Adolescents. Only participants that consented to be contacted for future studies were recruited. The entire household (e.g., children, parents, grandparents) was invited to participate in the interview to gather collective feedback from each family.

*Protocol.* Exploratory qualitative interviews were used to identify codes related to the family processes. An interview guide was developed by the academic institution and the ICFW (see Appendices C and D for interview questions). The interview guide consisted of four sections; each section was dedicated to each process (e.g., Family Engagement, Family Empowerment, Family Resilience, Family Cohesion). Sections included questions to understand how the processes were enacted in the family unit. Trained bilingual/bicultural research coordinators conducted the in-depth interviews. Families were interviewed via Zoom and the interviews were conducted in English and Spanish.

*Data Collection and Analysis.* Each in-depth interview was digitally recorded and archived until uploaded to a professional transcription service agency (GMR) using their online, encrypted web-portal. GMR provides a linguistic transcription service, for the

transcription of in-depth interviews conducted in Spanish. The approach included translating the Spanish language interview into English, to facilitate the coding in English. Prior to analyses, the fidelity of the English language translation was assessed against the original digital recording. Transcribed files were reformatted with the addition of original protocol headings and labels, to facilitate analyses using NVivo 12. Coding was conducted by two research team members. The research team developed a node hierarchical structure that consisted of: (a) Parent Nodes defined as the label for the contents of the Focus Question (e.g., Family Engagement, Family Empowerment, Family Resilience, Family Cohesion), (b) Child Nodes (subcategories within the parent node) theoretically driven by the definition of the family processes and new emerging themes, and (c) the Grandchild Nodes informed by each response phrase, identified in a "bottom-up" process of coding that captures a family's answer to a given Focus Question, as examined within and across families. During analysis with NVivo, "in vivo coding" was used to identify each answer to a Focus Question by "tagging" each response with the family's ID number.

The coded transcriptions were reviewed and reconciled by the two coders for a finalized version. The final codes were displayed as percentages in tables. Codes that emerged >50% during the family interviews were presented to the ICFW during the next step of adaptation for curriculum adaptation.

**Deciding What Needs Adaptation: II**

The ICFW and the academic institution met on a weekly basis to adapt the intervention to incorporate the codes (Child Nodes) that emerged from the family interviews. The team consisted of researchers from the academic institution, ICFW

registered dietitians/diabetes care and education specialists, and health educators with experience delivering past renditions of the intervention. Codes that had emerged >50% during the family interviews were presented during the meetings. The ICFW and academic institution provided feedback on what session activities should be kept, as to assure fidelity to the original intervention, and identified activities within the curriculum that aligned with the codes that emerged from the family interviews. New activities and modifications were proposed to augment the codes that had emerged from the interviews. The aligning activities and proposed modifications were tracked via Excel sheets linking the code (child node) to the session activities.

**Adapting the Curriculum: I**

The ICFW adapted the curriculum to integrate the sessions, objectives, and activities proposed in the previous phases. During the curriculum modifications, the ICFW identified additional activities that could be added, modified, or removed to augment the codes that had emerged from the family interviews. The ICFW modified the content based on their experience working with the Latino population, delivery of the ELSC interventions, and input from previous health educators and registered dietitians who had delivered the intervention, while ensuring fidelity to the core tenets and functions of the ELSC. The 2020-2025 Dietary Guidelines for Americans[75], Ellyn Satter's Division of Responsibility[76], and Standards of Care in Diabetes-2021[77] were reviewed to identify best practices and current evidence on dietary interventions for youth and families and incorporated into the curriculum.

**FDPP Pilot Study**

After adapting the curriculum, the FDPP curriculum was piloted to assess feasibility and acceptability among Latino families.

*Study Participants.* Study participants included families consisting of children, parent/guardians, and additional family members. The inclusion and exclusion criteria are noted below.

Eligible families: Inclusion criteria for families included self-reported Latino designation with a child between the ages of 10-16 years of age with overweight or obesity identified by a BMI of $\geq$ 85th percentile for age and sex.

Children: Inclusion criteria included an age of 10-16 years of age with overweight or obesity identified by a BMI of $\geq$ 85th percentile for age and sex. Exclusion criteria was a diagnosis of T2DM.

Parents/Guardians. Inclusion criteria for parents involved being a parent or guardian of the child who met the inclusion criteria for participation in the feasibility study. Exclusion criteria included an inability to participate in physical activity according to the Physical Activity Readiness Questionnaire (PARQ+).[78,79]

Additional family members: Inclusion criteria included siblings who did not meet the screening criteria above but demonstrated an interest in participating in the intervention and adults 18 or older living in the home. Exclusion criteria included an inability to participate in physical activity according to the PARQ+. If a non-parent/guardian was unable to participate in physical activity according to the PARQ+ but demonstrated interest in attending the nutrition education sessions, completing participant surveys and the focus

group, the study implementers were notified, and participants were allowed to participate in all study activities except for physical activity sessions.

*Recruitment Strategy.* Registered Dietitians (RDs) and community health educators at the ICFW recruited potential participants via their referral network of over 100 schools, community centers, and healthcare organizations in the greater Phoenix area. ICFW staff also posted study flyers on their Facebook and Instagram pages. Staff contacted previous participants of the ELSC that had expressed interest in participating in future research studies. Staff used a screening script and questionnaire to tell them about the study and determine eligibility.

*Protocol.* Home visits were conducted before the beginning of the group sessions, 10 families were randomly selected to participate in the home visit. A bilingual bicultural registered dietitian from the ICFW and a YMCA personal trainer visited the family in their home (or via Zoom based on the family's preference) for a 60-minute visit to facilitate program engagement of all household members. During the home visit, the team members provided a program overview, class schedule and materials, answered questions, and built rapport with the family.

The group sessions were delivered at a local YMCA through biweekly sessions (N=15). Due to time constraints, one of the sessions was not piloted. The sessions were delivered by bilingual/bicultural ICFW RDs to four groups of 4-6 families. Each group received four sessions. The sessions were delivered once a week and included one hour of nutrition and wellness education, followed by a 1-hour physical activity session delivered by YMCA personal trainers.

*Data Collection.* At the end of each home visit and weekly session, surveys and evaluation forms were administered to participants, intervention facilitators, and independent observers to assess the acceptability and feasibility of the adapted curriculum.

At the end of the 4 weeks, families were invited to participate in a focus group to provide additional feedback. Focus groups were conducted by research coordinators and lasted approximately one hour. Focus groups were conducted with parents and youth separately in English and Spanish by trained bilingual/bicultural research coordinators. Questions asked in the focus groups revolved around the focus group objectives: (1) to understand how the Latino family unit perceives the adapted diabetes prevention program for Latino families; (2) to learn about the experiences of each family member's participation in the program; and 3) to explore barriers family members experienced to participate in the program.

Each in-depth interview was digitally recorded and archived until uploaded to a professional transcription service agency (GMR) using their online, encrypted web-portal. GMR provides a linguistic transcription service, for the transcription of in-depth interviews conducted in Spanish. The approach included translating the Spanish language interview into English, to facilitate the coding in English.

**Deciding What Needs Adaptation: III (After the Pilot Study)**

Survey and focus group data from the pilot study were presented during weekly ICFW adaptation meetings. Modifications to the intervention, based on the pilot data, were proposed, and presented during the meetings. The ICFW determined the capacity to make changes to the intervention based on staffing and resources, while ensuring fidelity to the

intervention. A clinical psychologist, the original developer of the wellness sessions, reviewed the adapted wellness sessions based on the underlying theory guiding the wellness sessions.[80]

**Adapting the Curriculum: II**

The ICFW adapted the curriculum to integrate the data from the previous two phases (i.e., *Pilot Study*, *Deciding What Needs Adaptation: II*). The ICFW and the academic institution reviewed the curriculum for final edits. The reading level of the intervention handouts was assessed by the ICFW using the Flesch-Kincaid Grade Level with an aim of ≤6th grade level. Changes to the intervention handouts were made as needed to decrease the reading level.

**Staff Training**

The ICFW adapted and led the staff training in preparation for the delivery of the adapted curriculum. The components of the previous staff training and pilot results were considered when adapting the staff training for the FDPP. Modifications to the staff training were tracked via meeting minutes.

**Data Analysis for Adaptation Process**

*Content Analysis (Adaptation Coding).* To better understand the nature of adaptations that occurred throughout the phases, a trained researcher conducted content analysis on the data collected (i.e., meeting minutes, grant application, community

interviews, pilot study results, adaptation tracking sheets, and adapted curriculum) during the phases that guided the adaptation.

*FRAME Coding System.* The FRAME[43] (Figure 1) was used as the coding structure for the content analysis, however, new categories and levels were added based on a deductive and inductive coding process.

*Defining Adaptations.* Only adaptations that occurred during the completed phases of this study were included in the content analysis (Figure 2). To capture adaptations made to the curriculum content, adaptations were defined as: (1) adaptations to a session's objectives coded as a single adaptation (e.g., One adaptation = Two objectives from one session removed and one objective from the same session moved to a new session), (2) adaptations to the session structure, (3) removal/addition of sessions, and (4) adaptations to materials. Adaptations that occurred during the completed phases but were not part of the final curriculum (the version of the curriculum adapted after the pilot study) were not included in the analysis. Adaptations to the context, training, evaluation, and implementation and scale-up activities were also coded.

*Data Triangulation.* Once the adaptations were coded, the codes were triangulated with community partners and stakeholders via consensus meetings. The first consensus meeting was a one-hour meeting with the academic institution and ICFW, where the methodology for the research study was reviewed, preliminary data was shared, and a brief adaptation consensus was started to identify and cross-check the origins of the adaptations. The second consensus meeting was an all-day (7.5 hour) meeting with the ICFW, where the classification of each adaptation was cross-checked and reclassified as needed.

Additional consensus meetings were also conducted as needed with the primary investigator of the academic institution and the ICFW.

*Quantitative Analysis.* Data were uploaded and analyzed using SPSS v. 28. Double data entry was performed to examine and correct data entry errors. Variables were determined from the FRAME categories and levels. Descriptive statistics were conducted to analyze the frequencies and proportions of each category and level within the FRAME. Cross tabulation was performed on the *Who led the adaptation?*, *During what phase was the adaptation decided upon?,* and the FRAME categories: *What is modified?*, *Level of Delivery*, *What is the nature of content modification?*, *What was the goal?*, and *Reason*.

# CHAPTER 4

# RESULTS

Overall, a total of N=66 adaptations were identified. Due to the level of content analysis (i.e., the coding of adaptations to a session's objectives as a single adaptation and changes to these objectives occurring in more than one phase) and nature of adaptations (e.g., modifications to the instructor guide in more than one phase) a single adaptation was often coded in more than one phase. In a similar manner, a single adaptation (e.g., Integration of the FDP Model) often had multiple codes in the following FRAME categories: *What is modified?*, *At what level of delivery (for whom/what is the modification made?)*, *What is the nature of the content modification?*, *What was the goal?*, and *Reason* due to the multifaceted nature of the adaptation.

## Changes to the FRAME Coding System

New categories and levels identified through the inductive coding process were added to the FRAME. New categories included *Who led the adaptation?* and *During what phase was the adaptation decided upon?* with the levels *Deciding What Needs Adaptation: I (during grant application preparation)*, *Deciding What Needs Adaptation: II (after community interviews)*, and *Deciding What Needs Adaptation: III (after pilot study)*. The original FRAME category *WHO participated in the decision to modify?* was modified to *Who led the adaptation?* with the levels *Academic Institution* (ASU), *Community Partners* (consisting of both the ICFW and YMCA), and *Both* (consisting of ASU, ICFW, and YMCA) to better reflect the CBPR approach used throughout the adaptation process. The levels *Training and Evaluation* were separated under *What is*

*modified?*. The level *Interventionists* was added in the category *At what level of delivery (for whom/what is the modification made?)*. *Combining session content* was added in the category *What is the nature of the content modification?*. *To promote fidelity* was added in in the category *What was the goal?*. *Sociopolitical-To integrate the current state of the science*, *Organization/setting-To integrate observer feedback*, *Provider-To integrate interventionist/community feedback*, *Recipient-Feedback*, *Recipient-Reduce conflict among recipients*, *Recipient-Person-Centered Care/Language* were added as *Reasons* for adaptation. Changes to the FRAME are bolded and highlighted in Figure 4.

**FRAME Frequencies and Proportions**

Due to the nature of the study, all N=66 adaptations occurred in the planning phase and were proactive and planned. In the same manner, all adaptations were fidelity consistent with the preservation of the core tenets and functions of the ELSC. Summaries of the frequencies and proportions of the adaptations across the FRAME levels and categories can be found in Table 4, 5, and 6.

*During what phase was the adaptation decided upon?*. The adaptations (N=66) were coded across the *Deciding What Needs Adaptation: I (during grant application preparation)*, *Deciding What Needs Adaptation: II (after community interviews)*, and *Deciding What Needs Adaptation: III (after pilot study)* levels. The adaptations occurred across the levels a total of N=66 times, with 24 (36.6%) adaptations occurring in the *Deciding What Needs Adaptation: I*; 7 (10.6%) during the *Deciding What Needs Adaptation: II*, 31 (46.9%) during the *Deciding What Needs Adaptation: III*, and 4 (6.0%) in both the *Deciding What Needs Adaptation I & III* (Table 4). Adaptations occurred with

the highest frequency in *Deciding What Needs Adaptation: I (during grant preparation)* and *Deciding What Needs Adaptation: III (after pilot study)*.

| Adaptations (N=66) | Frequency (N) | Proportion (%) |
|---|---|---|
| *During what phase was the adaptation decided upon?* | | |
| Deciding What Needs Adaptation: I[a] | 24 | 36.6 |
| Deciding What Needs Adaptation: II[b] | 7 | 10.6 |
| Deciding What Needs Adaptation: III[c] | 31 | 46.9 |
| Deciding What Needs Adaptation: I & III[d] | 4 | 6.0 |

**Table 4.** *Phase Where Adaptation Was Decided Upon (FRAME Classification)*.

[a]During grant application preparation
[b]After community interviews
[c]After pilot study
[d]During grant application preparation and after pilot study

*Who led the adaptation?*. Adaptations (N=66) were led by the academic institution, community partners, or both. A total of 3 (4.5%) adaptations were led by the academic institution and 22 (33.3%) by community partners. Most of the adaptations (62.1%) were led by both the academic institution and community partners (Table 5).

| Adaptations (N=66) | Frequency (N) | Proportion (%) |
|---|---|---|
| *Who led the adaptation?* | | |
| Academic Institution | 3 | 4.5 |
| Community Partners | 22 | 33.3 |
| Both (Academic Institution/Community Partners) | 41 | 62.1 |

**Table 5.** *Entity Who Led the Adaptation (FRAME Classification).*

*What was modified?*. From the 66 adaptations, a total of n=72 classifications were identified in the *What is modified?* category. Of the 72 classifications, most (76.4%) were *Content* related (n=55). Remaining adaptations were related to the *Context* (n=6), *Training* (n=2), *Evaluation* (n=7), and to *Implementation and scale-up activities* (n=2).

*At what level of delivery? (For whom/what is the modification made?)*. The 66 adaptations were classified at the different levels of delivery a total of n=120. The lowest classification occurred at the *Network System/Community* level (n=5), the second highest

at the *Interventionists* level (n=53), and most occurred at the *Intervention Group* level (n=62).

*Type of contextual modification?* A total of n=6 contextual modifications occurred throughout phases. Contextual modifications included adaptations to the *Format* (n=2), *Setting* (n=1), *Personnel* (n=1), and *Population* (n=2).

*What is the nature of the content modification?* From the 66 adaptations, a total of n=83 content modifications were identified. The top five types of content modifications included: tailoring/tweaking/refining (n=24), removing/skipping elements (n=16), shortening/condensing (n=11), adding elements (n=10), and reordering of intervention modules or segments (n=8).

*What was the goal?*. Each adaptation had multiple goals (n=92). Overall, the goals of the adaptations were related to increasing reach or engagement, increasing retention, improving feasibility, improving fit with recipients, addressing cultural factors, improving effectiveness outcomes, increasing satisfaction, promoting fidelity, and promoting equity/reducing disparities. Improving feasibility (n=41) was the overarching goal of most of the adaptations.

*Reason*. A total of 104 reasons were identified as the origin of the adaptations. The reasons for the adaptations stemmed across the recipient, provider, organizational, and the sociopolitical FRAME levels. Two of the most prominent reasons consisted of organization time constraints (n=29) and to integrate the interventionist and community feedback (n=27).

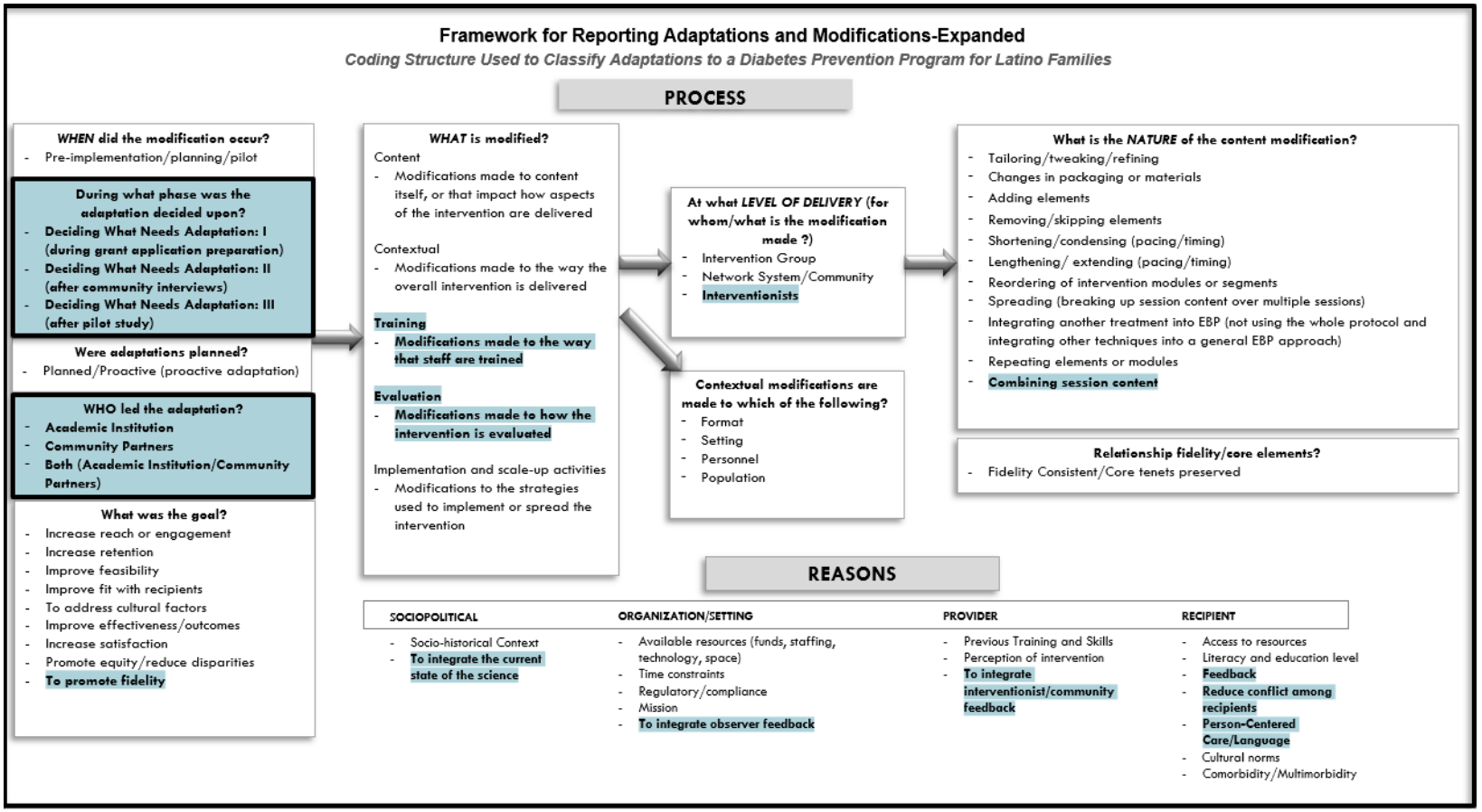



**Figure 4.** *FRAME Coding Structure for Adaptations to the FDPP*

| FRAME Classification | Frequency (n) | Proportion (%) |
|---|---|---|
| *What was modified?* | *n=72* | |
| Content | 55 | 76.4 |
| Contextual | 6 | 8.3 |
| Training | 2 | 2.8 |
| Evaluation | 7 | 9.7 |
| Implementation and scale-up activities | 2 | 2.8 |
| *At what level of delivery?* | *n=120* | |
| Network System/Community | 5 | 4.2 |
| Intervention Group | 62 | 51.7 |
| Interventionists | 53 | 44.1 |
| *Type of contextual modification?* | *n=6* | |
| Format | 2 | 33.3 |
| Setting | 1 | 16.7 |
| Personnel | 1 | 16.7 |
| Population | 2 | 33.3 |
| *What is the nature of the content modification?* | *n=83* | |
| Tailoring/tweaking/refining | 24 | 28.9 |
| Changes in packaging or materials | 3 | 3.6 |
| Adding elements | 10 | 12.0 |
| Removing/skipping elements | 16 | 19.3 |
| Shortening/condensing (pacing/timing) | 11 | 13.3 |
| Lengthening/extending (pacing/timing) | 4 | 4.8 |
| Reordering of intervention modules or segments | 8 | 9.6 |
| Spreading (breaking up session content over multiple sessions) | 4 | 4.8 |
| Integrating another treatment into EBP | 1 | 1.2 |
| Repeating elements or modules | 1 | 1.2 |
| Combining session content | 1 | 1.2 |
| *What was the goal?* | *n=92* | |
| Increase reach or engagement | 9 | 9.7 |
| Increase retention | 1 | 1.1 |
| Improve feasibility | 41 | 44.6 |
| Improve fit with recipients | 17 | 18.4 |
| To address cultural factors | 5 | 5.4 |
| Improve effectiveness/outcomes | 8 | 8.7 |
| Increase satisfaction | 4 | 4.3 |
| To promote fidelity | 3 | 3.3 |
| Promote equity/reduce disparities | 4 | 4.3 |
| *Reason* | *n=104* | |

| | | |
|---|---|---|
| Sociopolitical/Outer Context-To integrate the current state of the science | 4 | 3.8 |
| Sociopolitical/Outer Context-Sociohistorical context | 1 | 0.9 |
| Organization-To integrate observer feedback | 2 | 1.9 |
| Organization-Available resources (funds, staffing, technology, space) | 3 | 2.9 |
| Organization/setting-time constraints | 29 | 27.9 |
| Organization-Mission | 1 | 0.9 |
| Organization-Regulatory/compliance | 1 | 0.9 |
| Provider-Previous Training and Skills | 2 | 1.9 |
| Provider-Perception of the intervention | 7 | 6.7 |
| Provider-To integrate interventionist/community feedback | 27 | 25.9 |
| Recipient-Reduce conflict among recipients | 3 | 2.9 |
| Recipient-Literacy and Education Level | 3 | 2.9 |
| Recipient-Access to resources | 1 | 0.9 |
| Recipient-Person-Centered Care/Language | 1 | 0.9 |
| Recipient-Comorbidity/Multimorbidity | 4 | 3.8 |
| Recipient-Cultural norms | 6 | 5.8 |
| Recipient-feedback | 9 | 8.6 |

**Table 6.** *FRAME Classification of the 66 Adaptations*

**Cross-tabulation of FRAME Levels and Categories**

*Adaptation Occurrence by Entity and Phase.* As mentioned previously, most of the adaptations were decided upon during the grant preparation (N=24) and after the pilot study (N=31) (Figure 5). During the grant preparation, most adaptations were decided upon by both the academic institution and community partners (N=20). After the pilot study, community partners led 17 adaptations and both the community partners and academic institution co-led 14 adaptations.

*Who Led the Adaptation by Phase and Classification (What is modified?)*. Modifications to the content (n=29) were prominent during the *Deciding What Needs Adaptation: III* phase (Figure 6). During this phase, modifications classified as content level were mostly led by the community partners (n=17). In the phase *Deciding What Needs*

*Adaptation: I,* most modifications classified were content level (n=16), and were all co-led by both the community partners and academic institution. Throughout all the *Deciding What Needs Adaptation* phases, of the 72 classifications identified at the *What is modified?* level most of the adaptations were led by both the community partners and academic institution (n=46).

*Who Led the Adaptation by Phase and Classification (Level of Delivery)*. During *Deciding What Needs Adaptation: III*, the highest classification present was at the intervention group level (n=30), with the second highest at the interventionists level (n=28), and lowest at the network system/community level (n=1) (Figure 7). Meaning, that during the phase *Deciding What Needs Adaptation: III*, most adaptations were coded to be at the intervention group and interventionists levels. These classifications were identified primarily in adaptations led by the community partners (n=33). The second highest number of adaptations occurred in *Deciding What Needs Adaptation: I* (N=24). During this phase, the highest classification present was also at the intervention group level (n=22), with the second highest at the interventionists level (n=16), and lowest at the network system/community level (n=4). These classifications were identified mostly in adaptations led by both the community partners and academic institution (n=36). Overall, of the 120 classifications at the *Level of Delivery* most were led by both the community partners and academic institution (n=74).

*Who Led the Adaptation by Phase and Classification (Nature of Content Adaptation)*. In the phase *Deciding What Needs Adaptation: III*, the most common type of content modification was tailoring/tweaking/refining (n=16) most often led by the

community partner (Figure 8). In *Deciding What Needs Adaptation: I*, removing/skipping elements was the second highest type of content modification all led by both community partners and the academic institution. Throughout all the *Deciding What Needs Adaptation* phases, of the 83 classifications identified at the *Nature of Content Adaptation* level most were led by both the community partners and academic institution (n=50).

*Who Led the Adaptation by Phase and Classification (What was the goal?)*. Improving feasibility was the primary goal behind the adaptations, predominantly present in the *Deciding What Needs Adaptation: I* (n=14) and *Deciding What Needs Adaptation III* (n=22) (Figure 9). Of these, most (n=24) were led by both the community partners and academic institution. Overall, during all the *Deciding What Needs Adaptation* phases, of the 92 classifications identified at the *What was the goal?* level most were led by both the community partners and academic institution (n=55).

*Who Led the Adaptation by Phase and Classification (Reason)*. During the phase *Deciding What Needs Adaptation: I* organization/setting time constraints was a common reason for adaptation (n=12), all which were led by both the community partners and academic institution. In *Deciding What Needs Adaptation:* III, prominent reasons for adaptations related to organization/setting time constraints (n=15) and to integrate interventionist and community feedback (n=18), mostly led by the community partners (Figure 11). Overall, during all the *Deciding What Needs Adaptation* phases, of the 104 classifications under the reason for adaptation, most were led by both the community partners and academic institution (n=62) (Figure 10 & 11).

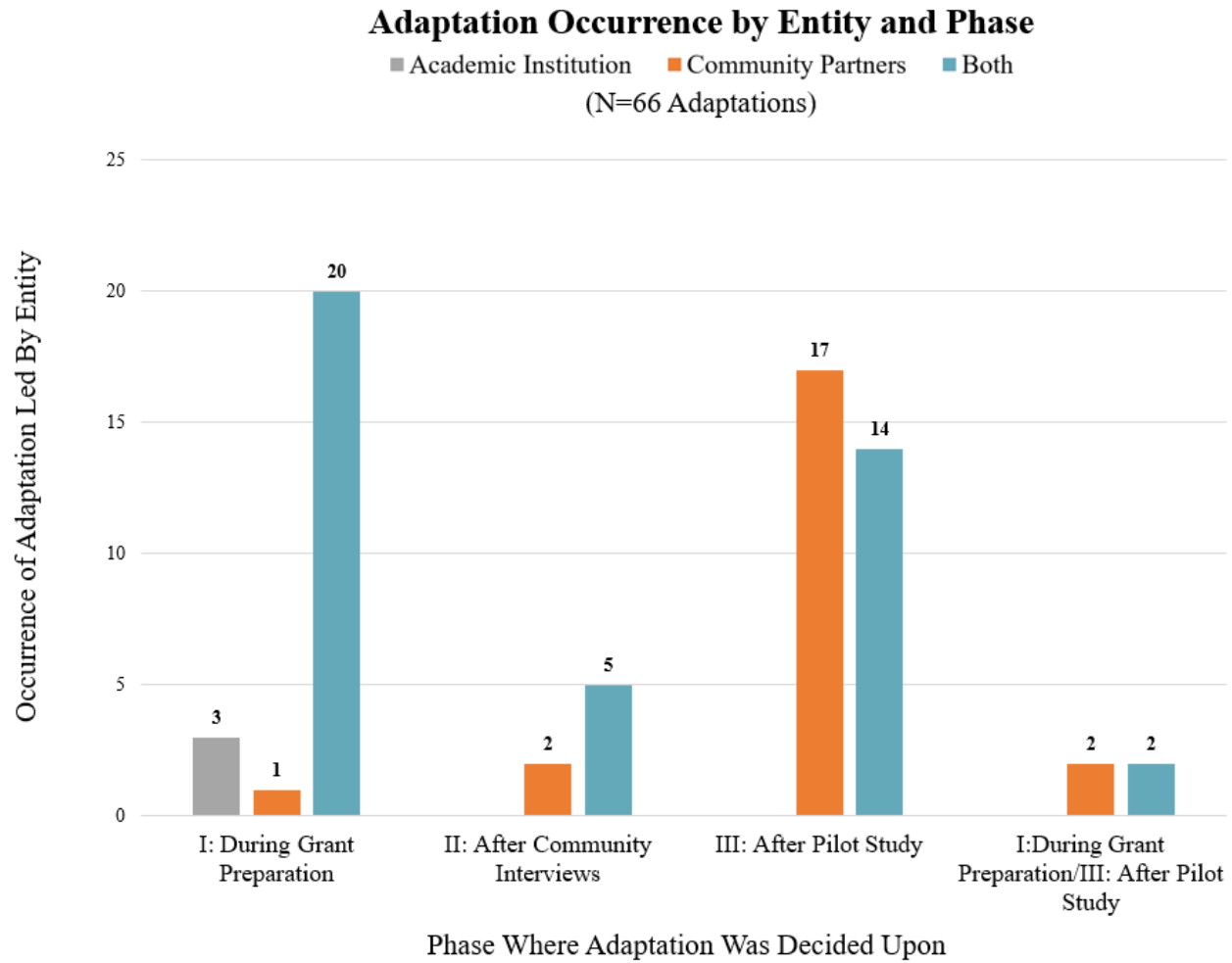



**Figure 5.** *Adaptation Occurrence by Entity and Phase.* Frequency of adaptations (N=66) led by each entity (i.e., community partners, academic institution, or both) during each adaptation phase(s).

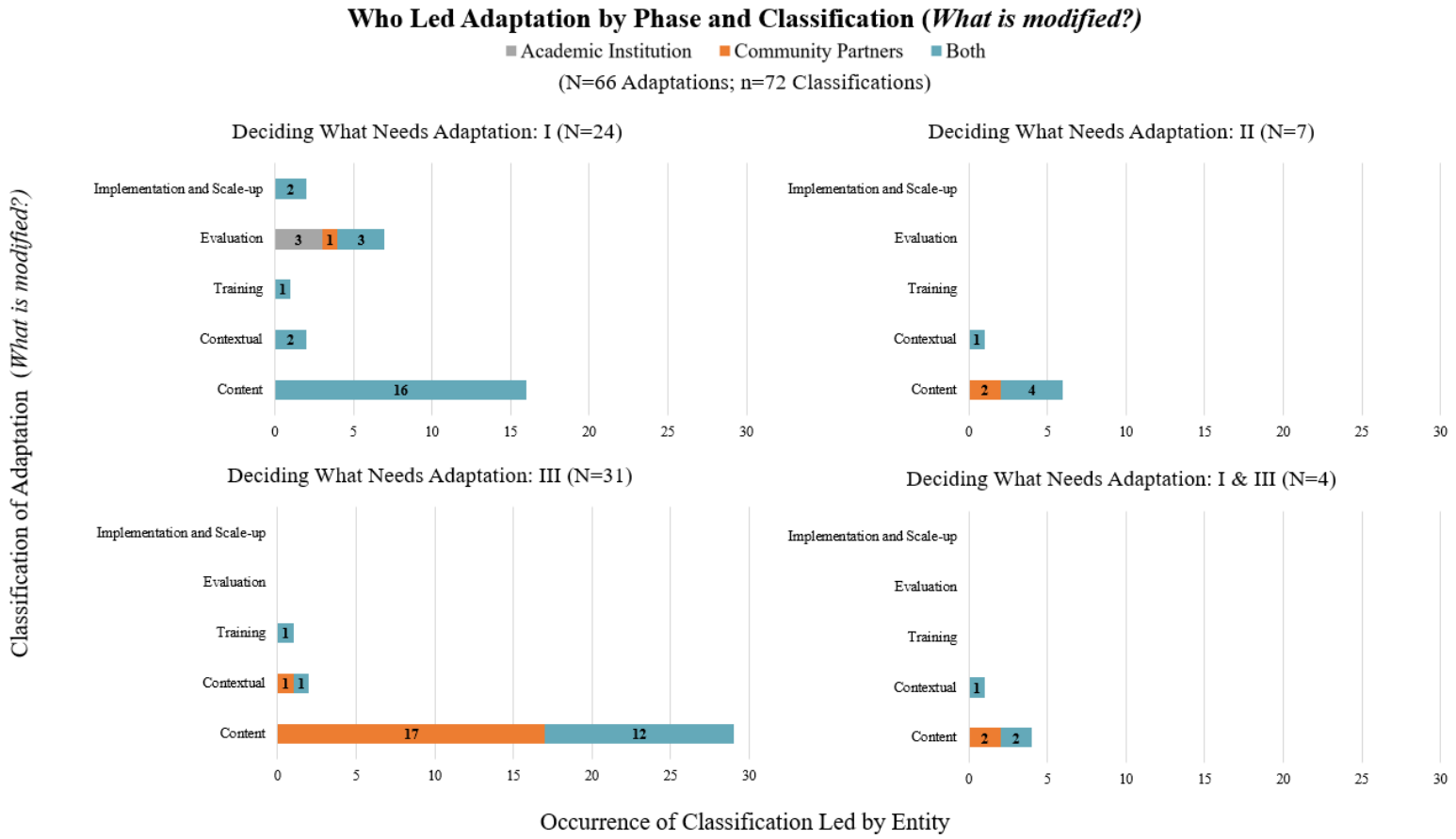



**Figure 6.** *Who Led Adaptation by Phase and Classification (What is modified?).* Depicts who led the adaptation (i.e., community partners, academic institution, or both) by phase according to the FRAME classification *What is modified?*.

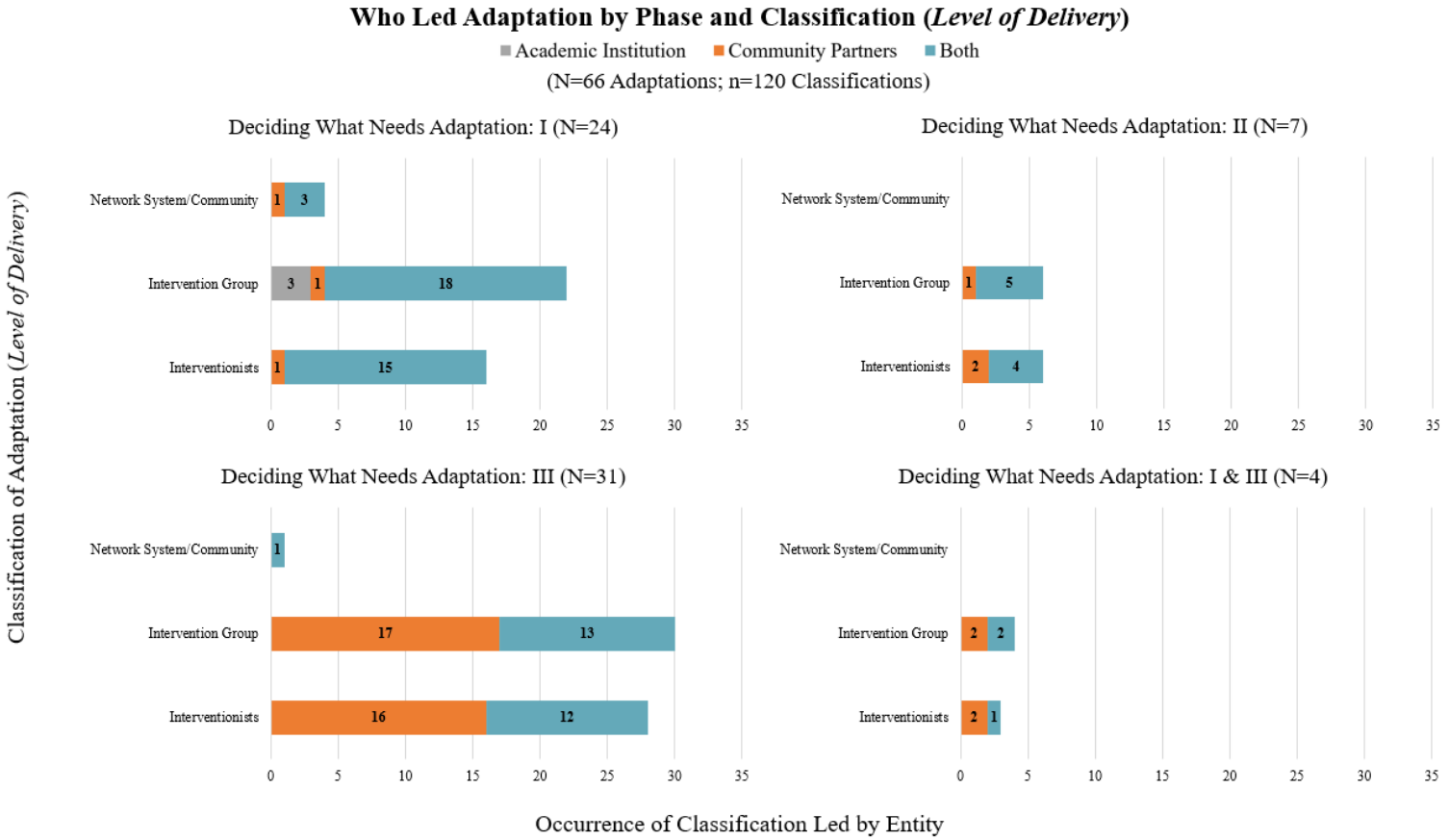



**Figure 7.** *Who Led Adaptation by Phase and Classification (Level of Delivery).* Depicts who led the adaptation (i.e., community partners, academic institution, or both) by phase and the level(s) of delivery according to the FRAME classification.

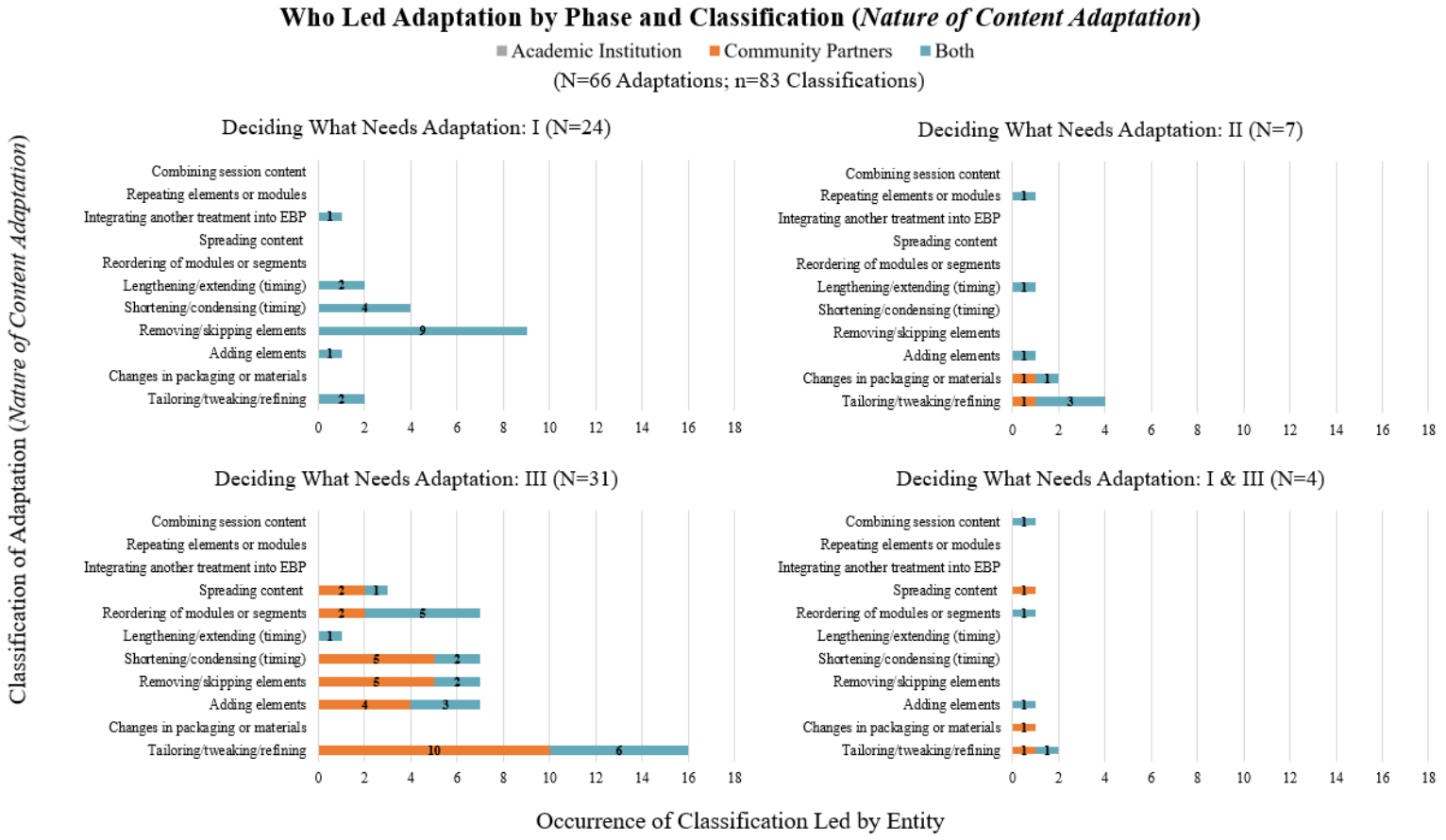



**Figure 8.** *Who Led Adaptation by Phase and Classification (Nature of Content Adaptation).* Depicts who led the adaptation by phase and the nature of the content adaptation(s) according to the FRAME classification.

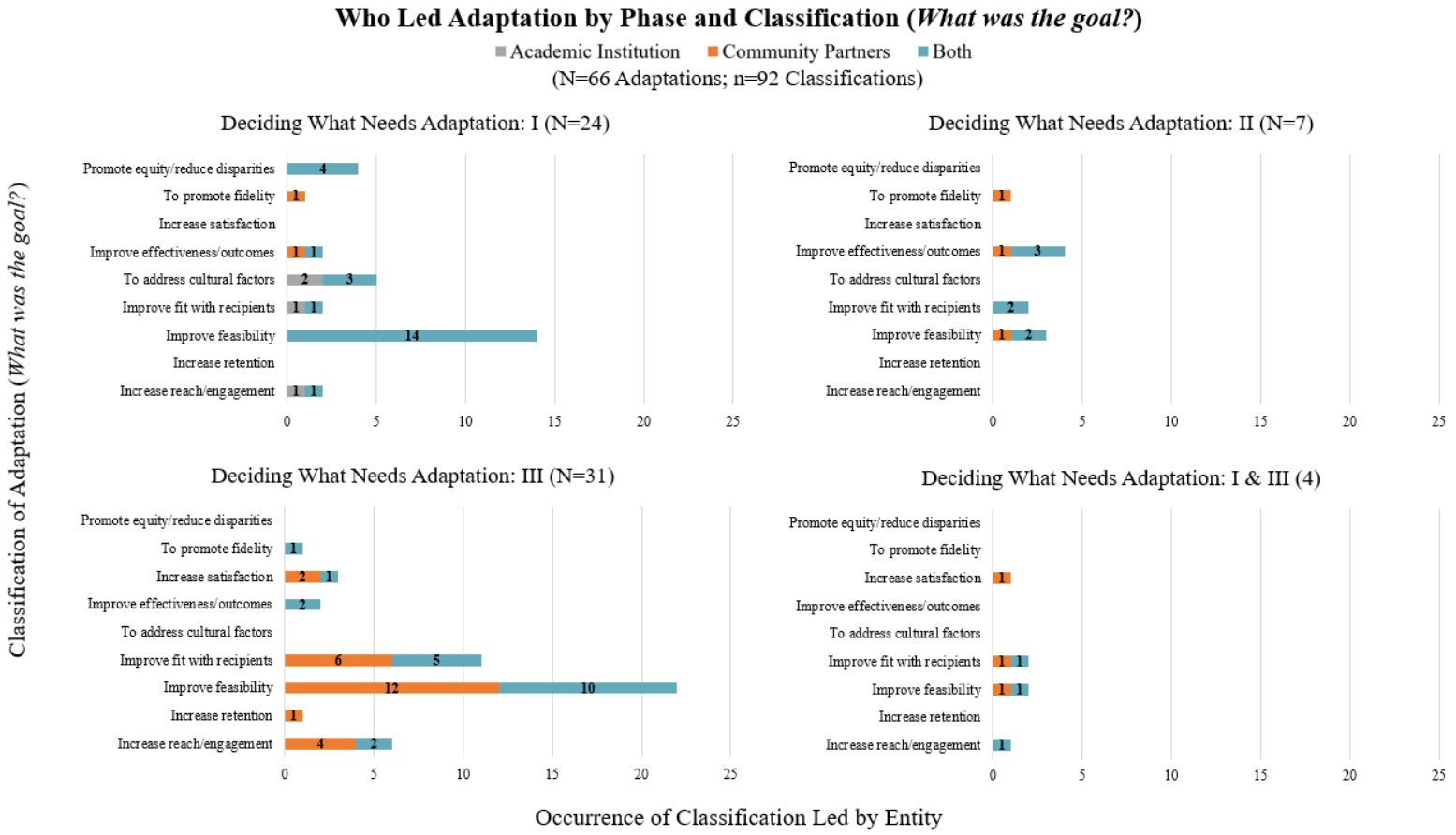
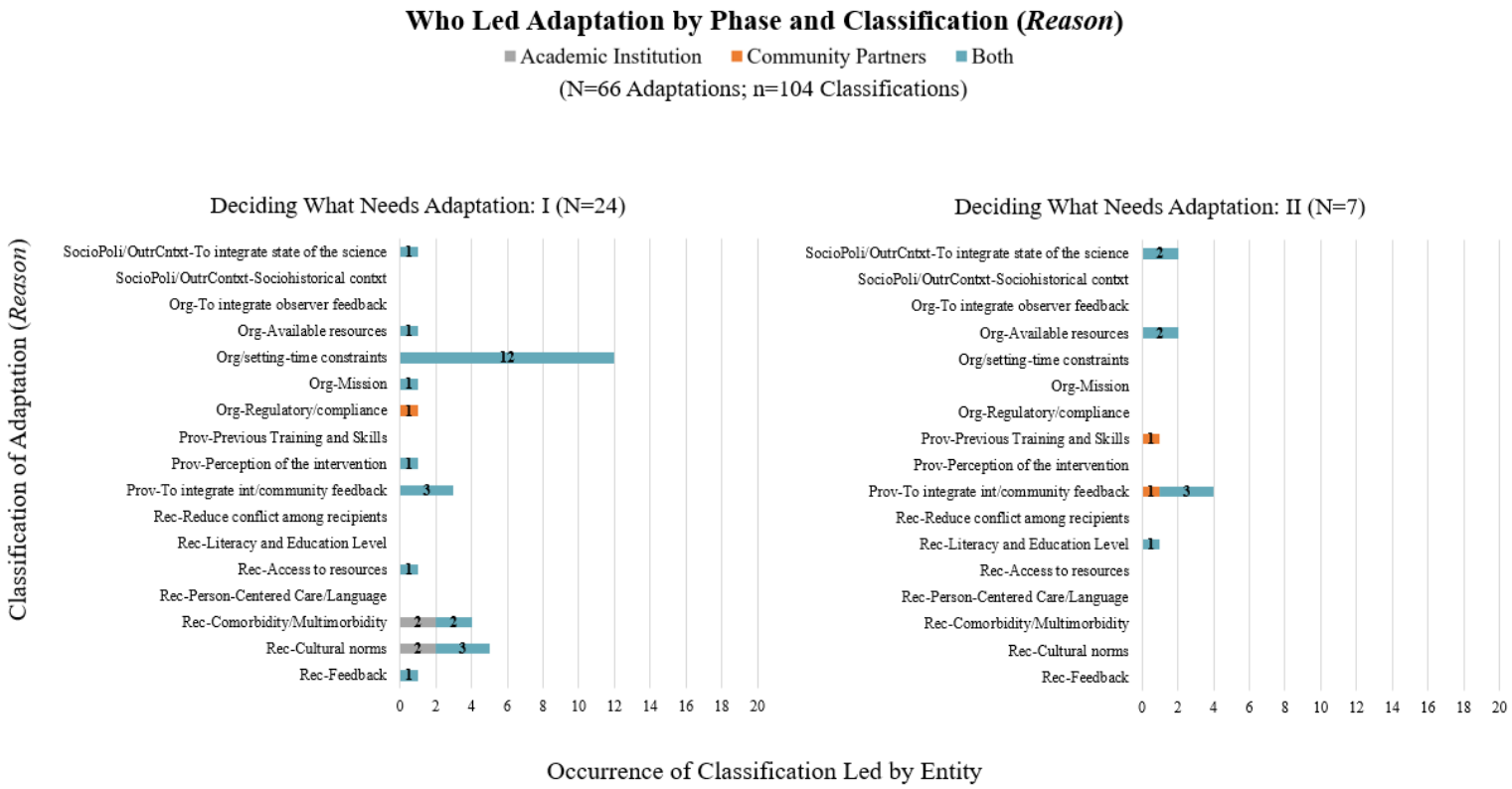
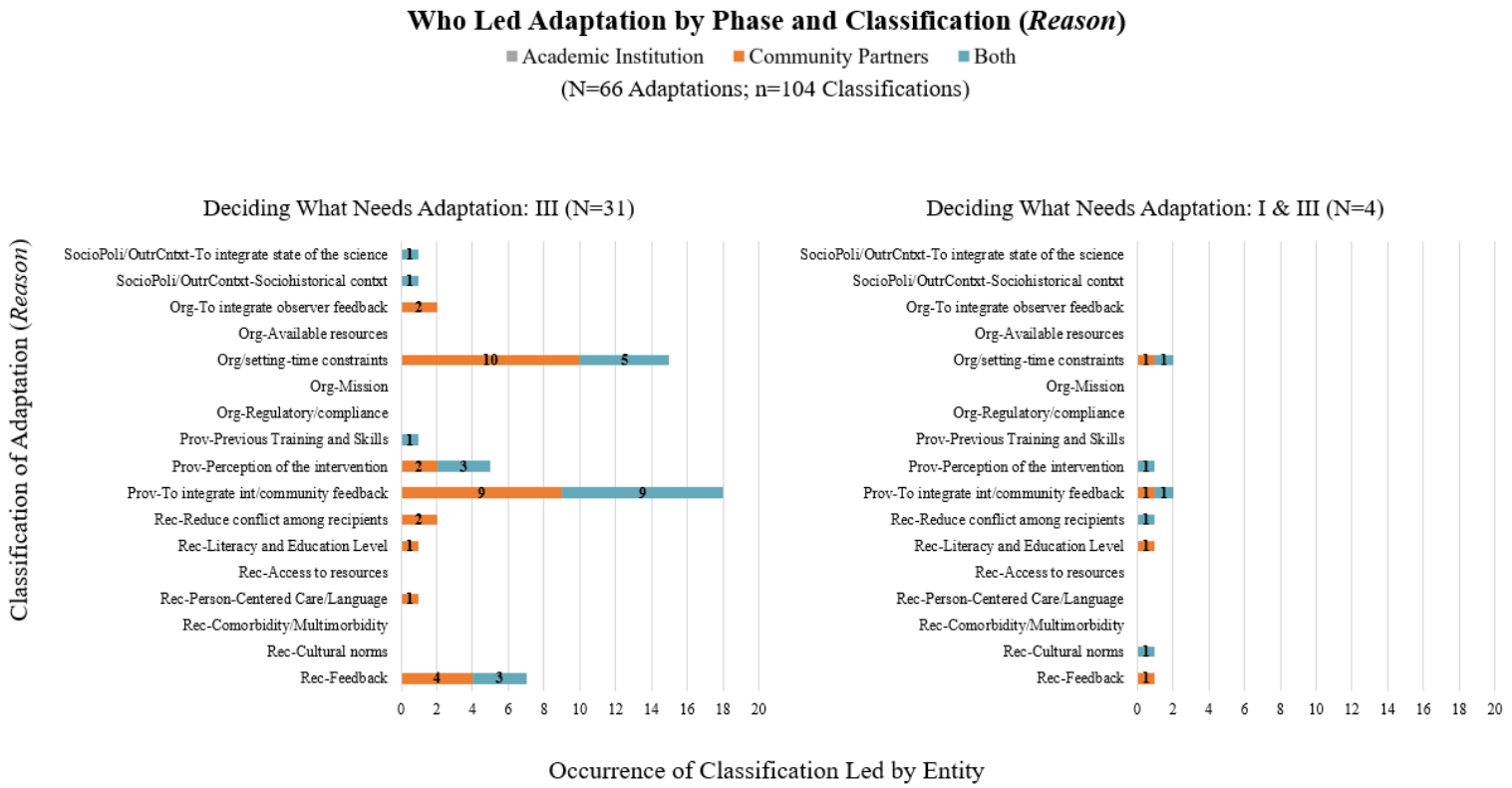



**Figure 9.** *Who Led Adaptation by Phase and Classification (What was the goal?).* Depicts who led the adaptation by phase and the goal(s) of the adaptation according to the FRAME classification.




Abbreviations: Rec=Recipient, Prov=Provider, Org=Organization, SocioPoli/OutrContxt=Sociopolitical/Outer Context, Contxt=context

**Figure 10.** *Who Led Adaptation by Phase and Classification (Reason).* Depicts who led the adaptation by phases *Deciding What Needs Adaptation: I* and *Deciding What Needs Adaptation: II* and reason(s) for adaptation according to the FRAME.




Abbreviations: Rec=Recipient, Prov=Provider, Org=Organization, SocioPoli/OutrContxt=Sociopolitical/Outer Context, Contxt=context

**Figure 11.** *Who Led Adaptation by Phase and Classification (Reason) Continued.* Depicts who led the adaptation by the phases *Deciding What Needs Adaptation: III* and *I & III* and the reason(s) for the adaptation according to the FRAME.

# CHAPTER 5

# DISCUSSION

While the ELSC has been delivered in the community and research setting for over two decades, this study is the first to rigorously examine adaptations made to the ELSC.

## Community-Based Participatory Research Throughout the Adaptation

A core tenet of the ELSC involves the integration of community partnerships throughout all aspects of the intervention. The approach guiding the adaptation was CBPR with the aim of including all partners equitably. Most of the adaptations (62.1%) were co-led by the community partners and academic institution, aligning with the CBPR approach and ELSC core tenet. CBPR principles were also seen throughout the reasons for adaptation since a common reason for adaptation was to integrate interventionist and community feedback. The collaboration between entities is most evident during the grant preparation, as most adaptations during this phase were co-led by both the community partners and academic institution.

Evans and colleagues note that the power of intervention adaptation is usually held by the intervention developers in collaboration with researchers[81], which is reflected in the results of this study. Most of the adaptations that remained in the final curriculum were decided upon during the grant application (N=24) and after pilot study (N=31). A minimal number (N=7) of adaptations that occurred after the *Interviewing the Community* phase remained in the final curriculum. Similarly, only 8.6% of adaptations were related to recipient feedback. In preparation for future ELSC adaptations, the role the community

plays (outside of the intervention developers) in adaptations is important to delineate to support the needs of new contexts, empower communities, and reduce the risk of allegiance bias.[81]

**Prominence of Content Modifications**

Content modifications (76.4%) were the most prominent type of adaptation seen throughout the study, which could be related to the level of granularity at which content adaptations to the curriculum were coded (e.g., coded adaptations to session objectives and adaptations to session structure as two separate adaptations). Adaptations to the context, training, evaluation, implementation/scale-up activities were often coded on a "broader" level (e.g., addition of the Home Visit training coded as a single adaptation, instead of coding components of the training as multiple adaptations). The overarching goal of curriculum adaptation, during the phases *Adapting the Curriculum: I* and *II* may also be why most adaptations were content-related. The aim of the FDPP pilot study was to assess the feasibility and acceptability of the adapted curriculum, which may be why content modifications were predominantly seen after the pilot study (n=29). After the pilot study, content modifications were mostly led by the community partners, which aligns with the ICFW's expertise in curriculum development and intervention coordination.

The main type of content modification included *tailoring/tweaking/refining* (28.9%). Refinement has been defined as "modification(s) of an intervention to work in the same place or with the same population as originally designed and implemented."[81] The previous rendition of ELSC that served as the intervention model for this study, was

delivered to Latino adolescents and their families in a similar context as the FDPP, which may be why most adaptations were classified as *tailoring/tweaking/refining*.

The second highest type of content modification was *removing/skipping elements* (19.3%), likely related to the decrease in intervention length from the past ELSC rendition (i.e., 29 sessions delivered in 6 months) to the adapted FDPP intervention (i.e., 16 sessions delivered in 3 months). In a similar manner, the decrease in intervention length may be the reason why most adaptations were related to organization/setting time constraints, especially when the ICFW and academic institution determined the decrease in intervention length after the *Deciding What Needs Adaptation: I (during grant application preparation)* phase. During *Deciding What Needs Adaptation: III (after the pilot study)* prominent reasons for adaptation were *organization/setting time constraints* and *to integrate interventionists and community feedback* related to survey feedback from the interventionists regarding the delivery the intervention within the designated class time.

**For Whom Were the Adaptations Made?**

Most of the adaptations were made for the intervention group (51.7%) and interventionists (44.1%) likely due to the pre-implementation nature of the study. Adaptations for the network system and community often occur at a larger scale. The small number of adaptations at the network system and community level (4.2%) may be related to the community partners and academic institution identifying goals and planning for the first stages of scaling the ELSC, but not yet executing the goals and plans. As the

ELSC is scaled to be delivered in new contexts, adaptations at the network system and community level will likely increase.

**What is the ELSC?**

It is well-known that adaptations to interventions occur throughout all phases of planning, testing, implementation, scale-up, and sustainment.[43] With the development of systems to classify adaptations[43], there is an opportunity to analyze retrospective adaptations that have been made to the ELSC to better understand the historical nature of the adaptations to gain insight into the ELSC's core tenets and function. The ELSC core tenets and functions were first identified by the community partners who developed the intervention. The core tenets and functions have served as the structure for the planning (e.g., integration of community and institutional partnerships), implementation (e.g., modifications to curricula), dissemination, and scale-up of the ELSC. As noted in the results section, all the adaptations were fidelity consistent with the preservation of the core tenets and functions, which could have been due to the program developers (ICFW) playing a leading role in the adaptation. The core tenets and functions have continued to be refined throughout the last 20 years; however, the question remains, what makes the ELSC the ELSC? A potential strategy to better understand this could be to go back even further to identify adaptations that have been made to the ELSC during the past 20 years and establish themes that have been maintained throughout each adaptation/rendition of the program. This strategy may give stakeholders and community partners better insight into the essence of the ELSC. The *Adaptome*[82], a proposed data platform to store such adaptations, may serve as a strategy to do this. Better understanding how the ELSC core

tenets and functions play out in new contexts may support the replication of the ELSC in larger contexts and help determine when adaptations may or may not be needed.

**To Track or Not to Track Adaptations?**

There is an equally important opportunity to continue tracking adaptations to the ELSC as they occur in a live manner during implementation, scale-up, and sustainment phases, especially since the phases *Implementation* and *Evaluation* are critical to the assessment of adaptations but are rarely reported on in scientific literature.[20] However, it is important to consider that tracking adaptations is time and resource intensive. Prior to tracking adaptations, it may be beneficial to identify the overall goal and purpose of tracking, as tracking adaptations has not yet been shown to lead to more effective outcomes.[81] Nonetheless, tracking adaptations may support the development of strategies to identify how to tie adaptations to outcomes.[83] Holtrop and colleagues have identified strategies to capture and analyze adaptations to support outcomes assessment[83]. Marques and colleagues identified that fidelity-consistent modifications to an intervention were associated with reductions in posttraumatic stress and depressive symptoms in clients.[84] If time and resources permit, these studies demonstrate how tracking adaptations may support the development of strategies to tie adaptations to outcomes.

**What is Adaptation?**

To support the strategies mentioned above, consensus as to what constitutes adaptation is needed. There are varying definitions as to what constitutes adaptation and when adaptation should occur.[85] Prior to tracking adaptations, it is important to consider

what constitutes an adaptation and the varying levels of adaptation granularity. In this study, we looked at adaptations made to the evaluation, content, context, training, evaluation, implementation, and scale-up. The granularity for describing an adaptation within each of those levels could have ranged from describing it as a single macro adaptation (i.e., integration of the FDP model), breaking it down to a meso-level adaptation (i.e., modifications to the evaluation), or a micro-level adaptation (i.e., assessment of family structure via family pedigrees). Throughout the literature, investigators have looked at adaptations with varying levels of granularity.[86–90] To efficiently track adaptations, consensus as to what constitutes varying levels of adaptation granularity (i.e., macro, meso, micro) is needed. Consensus may save time and resources spent on tracking adaptations that may not be necessary. The goal of the adaptation may be worth considering when assessing the level of granularity at which to track adaptations. This may become critical if tracking adaptations falls under the role of the implementers or other individuals who may be simultaneously coordinating and delivering interventions.

**When Is Adaptation Needed?**

An important consideration for future ELSC adaptations is determining when adaptations are needed. Evans and colleagues note the risk of a "culture of adaptation hyperactivity" when interventions are applied in new contexts and too much emphasis is placed on dissimilarities with limited emphasize on similarities.[81] It is important to equally look at similarities as they may exceed dissimilarities. When similarities exceed dissimilarities, pre-implementation adaptation may not be necessary, saving valuable

resources and time. If similarities exceed dissimilarities and/or the intervention is being delivered in a similar context, it may be beneficial to proceed to implementation and scale-up phases and track adaptations as interventions are being delivered. During these phases, adaptations led by implementers need to be fully supported and tracked to aid in the assessment of adaptations to the intervention's efficacy. To do this, the field needs adaptation processes and tracking approaches that are feasible to implement at a larger scale by communities, organizations, and research institutions. Waiting for an intervention's efficacy to be determined prior to implementation and dissemination works against the nature of adaptation, and would require efficacy trials with each new adaptation, posing resource and time barriers to dissemination and implementation.[91]

**Strengths and Limitations**

This is the first study outlining adaptations to the ELSC through a rigorous multidimensional approach that involved CBPR throughout all phases. Due to evidence demonstrating that Latino populations are at high risk of developing T2D and the partnerships that have developed during the last two decades in the Phoenix area, the participants in this study were limited to Latino families in the Phoenix metropolitan area. Although the focus limits generalizability to other populations, the overall framework may be used to guide interventions for additional populations. The descriptive nature limits the scope of the study as it cannot establish causation and can only provide an overview of what occurred.

Other limitations of this study include the use of a convenience sample during the pilot study phase; participants recruited and enrolled had previously participated in the

ELSC, potentially impacting the measure of acceptability, since families had demonstrated high engagement in the previous interventions. However, these families were selected as they were best equipped to share their feedback on the adapted curriculum based on their familiarity and previous engagement with the ELSC. The instructors delivering the sessions had extensive experience delivering past adaptations of the ELSC, which may have impacted (i.e., increased) the feasibility of the pilot study. However, due to the instructors' extensive experience, they were best equipped to share their feedback on participant engagement and the clarity and ease of delivering the adapted curriculum.

The expertise of the community partners was relied on heavily for the interpretation and integration of the data during times where there was not sufficient time to analyze the data (e.g., integration of data from *Interviewing the Community* and *Pilot Study* phases into adapted curriculum). The data was not analyzed to determine a threshold for when to incorporate adaptations, a limitation of this study. Alternatively, when to incorporate adaptations was determined by the community partners and their expertise in curriculum development and intervention coordination, a strength that aligns with the CBPR approach and ELSC core tenets.

# CHAPTER 6

# CONCLUSION

With the increasing rates of T2D, the field of dissemination and implementation science needs strategies to support families in diabetes prevention. The ELSC has demonstrated feasibility, acceptability, and efficacy in reducing risk factors for the development of T2DM in Latino youth.[12–14,19] This documentation of the adaptation of ELSC may support future adaptation, replication, and scaling to mitigate T2D risk and improve health outcomes. There is an opportunity to analyze past and future adaptations to the ELSC to better understand the intervention's core tenets and functions, along with the relationship between the forms of adaptations and intervention outcomes. In preparation for the scaling of ELSC, it is critical to determine when adaptations are needed to avoid a "culture of adaptation hyperactivity"[81], especially due to the time and resource intensive nature of adaptations. Future ELSC adaptations would benefit from considering how to incorporate feedback from diverse stakeholders and populations in preparation for scaling.

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# APPENDIX A

# FAMILY INTERVIEWS IRB APPROVAL

ASU Knowledge Enterprise Development

APPROVAL FULL BOARD

Gabriel Shaibi
CONHI - Research Faculty and Staff
602/496-0909
Gabriel.Shaibi@asu.edu

Dear Gabriel Shaibi:

On 1/25/2016 the ASU IRB reviewed the following protocol:

| | |
|---|---|
| Type of Review: | Initial Study |
| Title: | Diabetes Prevention for Latino Youth with Prediabetes |
| Investigator: | Gabriel Shaibi |
| IRB ID: | STUDY00003735 |
| Funding: | Name: HHS: National Institutes of Health (NIH), Grant Office ID: 2684, Funding Source ID: 1R01DK107579-01 |
| Grant Title: | 2684; |
| Grant ID: | 2684; |
| Documents Reviewed: | • Phone Script, Category: Recruitment Materials;<br>• Food Block Screener, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);<br>• Letter of Support St.pdf, Category: Off-site authorizations (school permission, other IRB approvals, Tribal permission etc);<br>• Quality of Life Measure, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);<br>• Letter of Support YMCA, Category: Off-site authorizations (school permission, other IRB approvals, Tribal permission etc);<br>• Protocol-MARKED, Category: IRB Protocol;<br>• Letter of Support SIRC, Category: Recruitment materials/advertisements /verbal scripts/phone scripts; |

| | |
|---|---|
| | • Preventing Diabetes in Latino Youth - Submitted.pdf, Category: Sponsor Attachment;<br>• Curriculum Guide, Category: Technical materials/diagrams;<br>• Protocol - CLEAN, Category: IRB Protocol;<br>• Child Assent-MARKED, Category: Consent Form;<br>• Preparing for Health Screening, Category: Recruitment Materials;<br>• Weight and Quality of Life Measure, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);<br>• Child Assent Clean, Category: Consent Form;<br>• Parental Permission, Category: Consent Form;<br>• Physical Activity Recall, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); |

The IRB approved the protocol from 1/20/2016 to 1/19/2017 inclusive. Before 1/19/2017, you are to submit a completed Continuing Review application and required attachments to request continuing approval or closure.

If continuing review approval is not granted before the expiration date of 1/19/2017 approval of this protocol expires on that date. When consent is appropriate, you must use final, watermarked versions available under the "Documents" tab in ERA-IRB.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Susan Metosky

# APPENDIX B

# FDPP PILOT STUDY IRB APPROVAL

ASU Knowledge Enterprise Development

APPROVAL: EXPEDITED REVIEW

Gabriel Shaibi
EDSON: Health Promotion and Disease Prevention, Center for
602/496-0909
Gabriel.Shaibi@asu.edu

Dear Gabriel Shaibi:

On 9/26/2021 the ASU IRB reviewed the following protocol:

| | |
|---|---|
| Type of Review: | Initial Study |
| Title: | Pilot: Preventing Diabetes in Latino Families |
| Investigator: | Gabriel Shaibi |
| IRB ID: | STUDY00014551 |
| Category of review: | |
| Funding: | Name: Arizona State University (ASU) |
| Grant Title: | |
| Grant ID: | |
| Documents Reviewed: | • Family ELSC Pilot Flyer_English.pdf, Category: Recruitment Materials;<br>• IRB responses_09262021.pdf, Category: Other;<br>• IRB Social Behavioral_pilot_09262021.docx, Category: IRB Protocol;<br>• Pilot_ASSENT_ENGLISH_09232021.pdf, Category: Consent Form;<br>• PilotParentalConsent_ENGLISH_09232021.pdf, Category: Consent Form; |

The IRB approved the protocol from 9/26/2021 to 9/25/2022 inclusive. Three weeks before 9/25/2022 you are to submit a completed Continuing Review application and required attachments to request continuing approval or closure.

If continuing review approval is not granted before the expiration date of 9/25/2022 approval of this protocol expires on that date. When consent is appropriate, you must use final, watermarked versions available under the "Documents" tab in ERA-IRB.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

REMINDER - All in-person interactions with human subjects require the completion of the ASU Daily Health Check by the ASU members prior to the interaction and the use of face coverings by researchers, research teams and research participants during the interaction. These requirements will minimize risk, protect health and support a safe research environment. These requirements apply both on- and off-campus.

The above change is effective as of July 29th 2021 until further notice and replaces all previously published guidance. Thank you for your continued commitment to ensuring a healthy and productive ASU community.

Sincerely,

IRB Administrator

# APPENDIX C

## INTERVIEW GUIDE-SPANISH QUESTIONS

**Institute for Social Science Research (ISSR) Grant**
***"explicación de los procesos familiares que apoyan la prevención de diabetes en familias latinas"***

**Objetivo principal:** Conducir entrevistas detalladas con 30 familias latinas para explicar como el compromiso, autonomía, flexibilidad, y la unión pueden ser integrados a un programa de prevención de la diabetes para realzar el acceso, difusión, y el impacto de la intervención en el sistema familiar.

**El enfoque de la pregunta general:** ¿Cuántos procesos familiares (compromiso, autonomía, flexibilidad, y unión) pueden ser incorporados en un programa de prevención de la diabetes tipo 2 para mejorar la salud de familias latinas?

## introducción del entrevistador/a

- Le vamos a preguntar sobre la participación de su familia en el programa Cada pequeño pasito cuenta, programa para la prevención de la diabetes [*Every Little Step Counts (ELSC) Diabetes Prevention Program*].
- Usted participo en el Proyecto en el mes de [ ], 20__ hasta el mes de [ ], 20__; para un total de __ (4-6) meses.
- ¿De los miembros de su hogar a quien considera como parte de su familia?
  - De estos, quienes participaron en ELSC

## Temas y Preguntas

**Compromiso familiar** – *compromiso: interactuar como familia, con otras familias, con los educadores de salud, y su alrededor para tomar acciones que mejoren la salud del Sistema familiar.*

- ¿Como estuvo su familia involucrada con el programa ELSC?
  - *¿Qué tipo de cambios hizo su familia? ¿Como pudo su familia hacer esto?*
- ¿Qué cambios Podemos hacer al programa para mejorar la salud de toda la familia (especialmente de aquellos que no estuvieron muy involucrados)?
  - *¿Me puede dar ejemplos?*
  - *¿De qué manera(s) su familia trabajo con otras familias o con los educadores de salud?*

**Unión familiar** – *Unión: fortalecer los lasos familiares al disminuir el conflicto y dar prioridad a la salud del sistema familiar en torno a un mismo propósito y meta de salud.*

- ¿Como cambio su relación familiar al participar con ESLC?

- ¿En qué maneras su familia se volvió más fuerte y saludable?
    - *¿Hubo alguna actividad dentro o fuera del programa que acerco más a su familia? Platíqueme más sobre eso.*

**Autonomía Familiar** – *Autonomía: Adquirir conocimiento, habilidades, y tener la capacidad para identificar y utilizar recursos para mejorar la salud y reducir el riesgo de diabetes.*

- ¿Que aprendió (o practico) tu familia durante el programa?
    - *¿De qué manera esta habilidad o conocimiento ayudo a tu familia a ser saludable?*
    - *Platíqueme más sobre eso.*

- ¿Como le ha ayudado el programa a cambiar la capacidad que tiene su familia de encontrar y usar recursos en su comunidad para mejorar la salud?
    - Platíqueme más sobre eso.

**Flexibilidad Familiar** – *Flexibilidad: la capacidad del Sistema familiar de resistir y recuperarse de la adversidad para hacerse fuerte, saludable, y más ingeniosos.*

- Antes de ELSC, ¿cuáles son unos de los desafíos que su familia enfrento al tratar de ser saludable?
    - *(Para el entrevistador, ejemplos incluyen cosas como comer saludable, hacer ejercicio, ver al médico, tomar medicamentos.)*

- ¿De qué manera su familia se une para solucionar problemas que afectan a toda la familia?
    - *¿Como aplica eso a la salud de su familia?*
    - *¿Como se adapta su familia a situaciones o eventos estresantes? ¿De qué manera aplica esto a la prevención de la diabetes?*

## Cuestionarios

Ahora tenemos preguntas cortas para aprender más acerca de sus pensamientos y sentimientos. Cada adulto en el hogar responderá individualmente. No existe respuesta correcta o incorrecta.

| Derived from: *"FACES-IV" (Olson, 2010)* | Completamente en desacuerdo | Generalmente en desacuerdo | Indeciso | Generalmente de Acuerdo | Completamente de acuerdo |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| **Union** | | | | | |
| 1. Los miembros de la familia estan involucrados en las vidas de los demas. | ○ | ○ | ○ | ○ | ○ |
| 2. Los miembros de la familia se sienten unidos. | ○ | ○ | ○ | ○ | ○ |
| 3. Los miembros de la familia se apoyan unos a otros durante tiempos dificiles. | ○ | ○ | ○ | ○ | ○ |
| 4. Los miembros de la familia disfrutan compartir su tiempo libre el uno con el otro. | ○ | ○ | ○ | ○ | ○ |
| 5. A pesar de que los miembros de la familia tienen intereses individuales aun participan en actividades familiares. | ○ | ○ | ○ | ○ | ○ |

| Derived from:<br>*"Parent Resource Empowerment Scale"*<br>*(Figueroa et al., 2020)* | Completamente de acuerdo | De acuerdo | Desacuerdo | Completamente en desacuerdo |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| **Autonomia (Padres)** | | | | |
| 1. **Se que puedo contar con mi familia para que ayude.** | ○ | ○ | ○ | ○ |
| 2. **Se como defender o abogar por mis hijos con profesionales.** | ○ | ○ | ○ | ○ |
| 3. **Se como encontrar programas, servicios, u otros recursos en mi comunidad.** | ○ | ○ | ○ | ○ |

| Derived from:<br>*"Walsh Family Resilience Questionnaire"*<br>*(Walsh, 2015)* | Muy raro/ Nunca | No muy seguido | A veces | Seguido | Casi siempre |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| **Flexibilidad** | | | | | |
| 1. Nuestra familia enfrenta dificultas como equipo, es vez de invididualmente. | ○ | ○ | ○ | ○ | ○ |
| 2. Nos animamos los unos a los otros y dependemos en las fortalezas de cada uno. | ○ | ○ | ○ | ○ | ○ |
| 3. Podemos contar con los miembros de nuestra familia durante momentos dificiles. | ○ | ○ | ○ | ○ | ○ |
| 4. Podemos contar con el apoyo de nuestros amigos y nuestra comunidad. | ○ | ○ | ○ | ○ | ○ |
| 5. Tenemos aceso a recursos comunitarios para ayudar a nuestra familia durante momentos dificiles. | ○ | ○ | ○ | ○ | ○ |

# APPENDIX D

## INTERVIEW GUIDE-ENGLISH QUESTIONS

**Institute for Social Science Research (ISSR) Grant**
***"Explicating Family Processes to Support Diabetes Prevention in Latino Families"***

**Primary Aim:** Conduct in-depth interviews with 30 Latino families to explicate how family engagement, empowerment, resilience, and cohesion, can be integrated into a diabetes prevention curriculum to enhance the reach, diffusion, and impact of the intervention on the family system.

**The Overarching Focus Question:** "How may family processes (engagement, empowerment, resilience, and cohesion) be incorporated into type 2 diabetes prevention curriculum to improve the health of Latino families?"

## Interviewer Introduction

- We will ask about your family's participation in *Every Little Step Counts (ELSC) Diabetes Prevention Program*.
- You participated in this project in the month of [ ], 20__ to the month of [ ], 20__; a total of __ (4-6) months.
- Who in your household do you consider as part of your family?
  - Of these people, who was involved with ELSC?

## Themes & Questions

**Family Engagement** – *Engagement: Interacting as a family, with other families, health educators, and the environment to take actions to improve the health of the family system.*

- How was your family involved in the ELSC program?
  - *What type of changes did your family make? How did your family do this?*
- What changes can we make to the program to improve the health of the entire family (especially those that were not involved as much)?
  - *Can you give me examples?*
  - *In what ways did your family work with other families or the health educators?*

**Family Cohesion** – *Cohesion: Strengthening bonds within families by decreasing conflict and prioritizing the health of the family system around a shared purpose and health goal.*

- How did participating in ELSC change relationships in your family?
- In what ways did your family become stronger or healthier?

- *Were there any specific activities in or outside of the program that brought your family closer together? Tell me about this.*

**Family Empowerment** – *Empowerment: Acquiring knowledge, skills, and capacity to identify and utilize resources to improve health and reduce diabetes risk.*

- What did your family learn (or practice) during the program?
  - *How did that skill help your family be healthy?*
  - *Tell me more about this.*

- How has the program changed your family's ability to find and use resources in your community to improve health? *Tell me more.*

**Family Resilience** – *Resilience: The capacity of the family system to withstand and rebound from adversity to become stronger, healthier, and more resourceful.*

- Before ELSC, what were some challenges your family faced when trying to be healthy?
  - *(For interviewer, examples include things such as healthy eating, exercise, seeing a doctor, getting medications.)*

- How does your family come together to address problems that affect the entire family?
  - *How does your family apply this to health?*
  - *How does your family adapt to stressful events or situations? How could this apply to preventing diabetes?*

## Questionnaires

Now we have some shorter questions to learn more about your thoughts. Each adult in the household will answer the questions individually. There are no right or wrong answers.

| Derived from: *"FACES-IV" (Olson, 2010)* | Strongly Disagree | Generally Disagree | Undecided | Generally Agree | Strongly Agree |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| **Cohesion** | | | | | |
| 1. Family members are involved in each others lives. | ○ | ○ | ○ | ○ | ○ |
| 2. Family members feel very close to each other. | ○ | ○ | ○ | ○ | ○ |
| 3. Family members are supportive of each other during difficult times. | ○ | ○ | ○ | ○ | ○ |
| 4. Family members like to spend some of their free time with each other. | ○ | ○ | ○ | ○ | ○ |
| 5. Although family members have individual interests, they still participate in family activities. | ○ | ○ | ○ | ○ | ○ |

| Derived from:<br>*"Parent Resource Empowerment Scale"*<br>*(Figueroa et al., 2020)* | Strongly Agree | Agree | Disagree | Strongly Disagree |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| **Empowerment (Parent)** | | | | |
| 1. **I know I can get my family to help.** | ○ | ○ | ○ | ○ |
| 2. **I know how to speak up or advocate for my child with professionals.** | ○ | ○ | ○ | ○ |
| 3. **I know how to find programs, services, or other resources in my community.** | ○ | ○ | ○ | ○ |

| Derived from:<br>*"Walsh Family Resilience Questionnaire"*<br>*(Walsh, 2015)* | Rarely/ Never | Not Often | Sometimes | Often | Almost Always |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| **Resilience** | | | | | |
| 1. Our family faces difficulties together as a team, rather than individually. | ○ | ○ | ○ | ○ | ○ |
| 2. We encourage each other and build on our strengths. | ○ | ○ | ○ | ○ | ○ |
| 3. We can count on family members to help each other in difficulty. | ○ | ○ | ○ | ○ | ○ |
| 4. We can rely on the support of friends and our community. | ○ | ○ | ○ | ○ | ○ |
| 5. We can access community resources to help our family through difficult times. | ○ | ○ | ○ | ○ | ○ |

# APPENDIX E

# SPANISH HOME VISIT PARTICIPANTS SURVEY

**Clase 1: La Bienvenida**
**Encuesta Después De la Visita**

**Circula Uno:**

Soy padre, guardián, o tengo 17 años o más  Tengo entre 10 a 16 años

**Fecha** _____

**Llena la burbuja que corresponda con tu respuesta:**

1. ¿La visita de hoy te hizo sentir más cómodo con comenzar el programa?

| Mucho | Mas o menos | Un poquito | No |
|---|---|---|---|
| O | O | O | O |

2. Todas mis preguntas sobre el programa fueron contestadas: (**Circula uno**) Si No

3. El tiempo para la visita de hoy estuvo:

| Muy largo | Bien | Muy corto |
|---|---|---|
| O | O | O |

4. El maestro/la maestra parecía muy apresurado(s)?

| No | Un poquito | Si |
|---|---|---|
| O | O | O |

5. El maestro/la maestra hizo un buen trabajo escuchando a todos en mi familia.

| No | Un poquito | Si |
|---|---|---|
| O | O | O |

6. ¿Te prestó atención el maestro/la maestra cuando hablaste?

| No | Un poquito | Si |
|---|---|---|
| O | O | O |

7. ¿Qué tan cómodo/a te sentiste compartiendo tu opinión?

| Muy cómodo/a | Mas o menos cómodo/a | Un poquito cómodo/a | Nada de cómodo/a |
|---|---|---|---|
| O | O | O | O |

**Por favor complete el otro lado →**

8. ¿Con qué frecuencia prestaste atención?

| Nunca | Casi nunca | De vez en cuando | Seguido |
|---|---|---|---|
| O | O | O | O |

9. Del 1-10, ¿qué tan importante crees que es que todos los miembros de tu familia estén presentes en la visita para ser parte del programa? **(Circula el número que corresponda con tu respuesta)**

0 ----------1----------2----------3----------4----------5----------6----------7----------8----------9----------

No importante — Mas o menos importante — Muy importante

10. En tu opinión, ¿cuál fue el propósito de la visita?

_____

11. Qué cambiarías de la visita para que fuera mejor para ti y tu familia:

_____

_____

_____

**¡Gracias por compartir!**

# APPENDIX F

# ENGLISH HOME VISIT PARTICIPANTS SURVEY

**Class 1: Home Visit**
**Post Survey**

**Circle One:**

I am a parent, guardian, or 17 years old or older  I am between 10 to 16 years old

**Date** _____

**Fill in the bubble to answer each question:**

1. Did the home visit make you feel more comfortable about starting the program?

| A lot of | Somewhat | A little | No |
|---|---|---|---|
| O | O | O | O |

2. All my questions about the program were answered: **(Circle One)**  Yes  No

3. The home visit time was:

| Too long | Just right | Too short |
|---|---|---|
| O | O | O |

4. Did the teacher seem rushed?

| No | A little | Yes |
|---|---|---|
| O | O | O |

5. The teacher did a good job of listening to everyone in my family.

| No | A little | Yes |
|---|---|---|
| O | O | O |

6. Did the teacher pay attention to you when you spoke?

| No | A little | Yes |
|---|---|---|
| O | O | O |

7. How comfortable did you feel sharing your opinion?

| Very comfortable | Somewhat comfortable | A little comfortable | Not comfortable |
|---|---|---|---|
| O | O | O | O |

**Please complete the other side →**

**Class 1: Home Visit**
**Post Survey**

8. How often did you pay attention?

| Never | Rarely | Occasionally | Often |
|---|---|---|---|
| O | O | O | O |

9. On a scale of 1-10, how important do you think it is for all your family members to be at the home visit to be part of the program?

0 ----------1----------2----------3----------4----------5----------6----------7----------8----------9----------10

Not important — Somewhat important — Very important

10. In your opinion what was the main point of the home visit?

_____

11. What would you change about the home visit to make it better for you and your family:

_____

_____

_____

**Thank you for sharing!**

# APPENDIX G

## FACILITATOR EVALUATION FORM-HOME VISIT

**Facilitator Evaluation Form**
**Home Visit**

**Facilitator Name** _____ **Date**_____

**Answer the following questions about the home visit:**

1. Which family members were present in the home? (**Check all that apply**)
   - □ Participant (s) If more than one, how many? _____ (write numerical value)
   - □ Mother
   - □ Father
   - □ Sister, how many? _____
   - □ Brother, how many? _____
   - □ Grandmother
   - □ Grandfather
   - □ Aunt
   - □ Uncle
   - □ Cousin, _____
   - □ Others (specify below):

   _____

   _____

2. Were any family members resistant to participating in the home visit? (**Check all that apply**)

   - □ Participant (s) If more than one, how many? _____ (write numerical value)
   - □ Mother
   - □ Father
   - □ Sister, how many? _____
   - □ Brother, how many? _____
   - □ Grandmother
   - □ Grandfather
   - □ Aunt
   - □ Uncle
   - □ Cousin, _____
   - □ Others (specify below):

   _____

   _____

3. Were any family members not home during the home visit?

   Yes No

   3a. If yes, who was not home?

   _____

   _____

   _____

**Please complete the other side →**

4. How often did ALL the family members participate in the home visit? **(Fill in the bubble with your answer)**

| All the time | Most of the time | Little of the time | None of the time |
|---|---|---|---|
| ○ | ○ | ○ | ○ |

5. Which activities did NOT engage the entire families? **(Write activity names)**

_____

_____

_____

5a. Which family members were not engaged and how did you know?

_____

_____

_____

6. Were parts of the home visit difficult to facilitate or unclear in the curriculum? **(Circle one)**

Yes No

6a. If yes, which ones and what could have made them easier to facilitate?

_____

_____

_____

7. Did you have enough time to deliver the home visit as structured in the curriculum? **(Circle one)**

Yes No

7a. If no, what factors contributed to this, and do you have any recommendations to allow for enough time?

_____

_____

_____

**Please complete the other side →**

8. Was there any information missing from the curriculum or were there missing materials to be able to conduct the home visit effectively?

Yes No

8a. If yes, what was missing?

_____

_____

_____

_____

_____

9. What would you change to help improve the home visit?

_____

_____

_____

_____

_____

**Thank you for your feedback!**

# APPENDIX H

## OBSERVER EVALUATION FORM-HOME VISIT

**Observer Class Evaluation Form**
**Home Visit**

**Observer Name**_____ **Date**_____

**Facilitator Name**_____ **Start Time:**_____**End Time:** _____

***OBSERVER: Please review the home visit curriculum and this evaluation form before the home visit and fill in the Activity/Discussion names.**

**Circle whether the facilitator completed the following and answer the questions below:**

| **Welcome/Introduction** | | |
|---|---|---|
| Did the nutrition facilitator introduce herself/himself? | Yes | No |
| Did the exercise instructor introduce herself/himself? | Yes | No |
| Did every family member present in the home introduce themselves? | Yes | No |

If not, why?

_____
_____
_____

**Activity/Discussion:**

_____
*(Write activity or discussion name)*

Use this space to write any quotes participants state throughout this activity that reflect engagement or lack of engagement:

| | | |
|---|---|---|
| Did the facilitator provide clear instructions for this activity? | Yes | No |
| Did the families demonstrate an understanding of this activity? | Yes | No |
| Did the facilitator provide an opportunity for family members to ask questions? | Yes | No |

| | | |
|---|---|---|
| Was the facilitator able to establish rapport with everyone in the family? | Yes | No |
| Did every family member participate in this activity? | Yes | No |
| Circle *yes* or *no* for the following statements, this activity was: | | |
| • Culturally appropriate | Yes | No |
| • Focused on the family | Yes | No |
| • Too long | Yes | No |
| • Too short | Yes | No |
| • Too didactic | Yes | No |
| The facilitator was well prepared to deliver this discussion/activity | Yes | No |
| **Class Objectives** | | |
| Did the facilitators review the purpose of the home visit with the family? | Yes | No |
| **Activity/Discussion:**<br><br>_____<br>*(Write activity or discussion name)* | | |
| Use this space to write any quotes participants state throughout the activity that reflect engagement or lack of engagement: | | |
| | | |
| Did the facilitator provide clear instructions for this activity? | Yes | No |
| Was the facilitator able to establish rapport with everyone in the family? | Yes | No |
| Did the facilitator provide an opportunity for family members to ask questions? | Yes | No |
| Did the families demonstrate an understanding of this activity? | Yes | No |
| Did every family member participate in this activity/discussion? | Yes | No |
| Circle *yes* or *no* for the following statements, this activity was: | | |
| • Culturally appropriate | Yes | No |
| • Focused on the family | Yes | No |
| • Too long | Yes | No |
| • Too short | Yes | No |
| • Too didactic | Yes | No |
| The facilitator was well prepared to deliver this discussion/activity | Yes | No |

| **Activity/Discussion:**<br><br>*(Write activity or discussion name)* | | |
|---|---|---|
| Use this space to write any quotes participants state throughout the activity that reflect engagement or lack of engagement: | | |
| | | |
| Did the facilitator provide clear instructions for this activity? | Yes | No |
| Did the facilitator provide an opportunity for family members to ask questions? | Yes | No |
| Was the facilitator able to establish rapport with everyone in the family? | Yes | No |
| Did every family member participate in this activity? | Yes | No |
| Did the families demonstrate an understanding of this activity? | Yes | No |
| Circle *yes* or *no* for the following statements, this activity was: | | |
| • Culturally appropriate | Yes | No |
| • Focused on the family | Yes | No |
| • Too long | Yes | No |
| • Too short | Yes | No |
| • Too didactic | Yes | No |
| The facilitator was well prepared to deliver this discussion/activity | Yes | No |
| **Summary and Closing** | | |
| Did the facilitator review the homework? | Yes | No |
| Did the facilitator provide closure to the home visit? | Yes | No |
| Did the facilitator distribute the home visit evaluation forms to all in the home over the age of 10? | Yes | No |

**Please complete the other side →**

Is there anything you would change about the home visit?

4

# APPENDIX I

## SPANISH POST CLASS PARTICIPANT SURVEY

**Encuesta Después de la Clase Para el Participante**

**Numero de la Clase:** _____ **Fecha:** _____

**Circula Uno:** Soy padre, guardián, o tengo 17 años o más Tengo entre 10 a 16 años

**¿A qué hora es tu clase de nutrición? (Circula uno)** 5:30 PM 6:30 PM

**Circula el número en la escala que corresponda con tu respuesta:**

1. En una escala del 1 a 10, ¿qué tan divertida estuvo la clase de nutrición hoy?

0 ----------1----------2----------3----------4----------5----------6----------7----------8----------9----------10
Aburrida Mas o menos Muy divertida

2. En una escala del 1 a 10, ¿qué tan divertida estuvo la clase de ejercicio hoy?

0 ----------1----------2----------3----------4----------5----------6----------7----------8----------9----------10
Aburrida Mas o menos Muy divertida

3. En una escala del 1 a 10, ¿le recomendarías esta clase a un amigo/a?

0 ----------1----------2----------3----------4----------5----------6----------7----------8----------9----------10
Definitivamente no Probablemente Definitivamente

**Llena la burbuja que corresponda con tu respuesta:**

4. ¿Crees que los temas mencionados en la clase de nutrición de hoy podrían ayudarte a ti y a tu familia a estar sanos?

No ○ Quizás ○ Si, un poquito ○ Si, mucho ○

5. ¿Parecía la maestra de nutrición apresurada a cubrir el material de la clase?

No ○ Un poquito ○ Si ○

**Por favor complete el otro lado →**

6. El tiempo para la clase de nutrición estuvo:

| Muy corto | Bien | Muy largo |
|---|---|---|
| O | O | O |

7. ¿Te prestó atención el maestro/la maestra cuando hablaste durante la clase?

| No | Un poquito | Si |
|---|---|---|
| O | O | O |

8. ¿Qué tan cómodo/a te sentiste compartiendo tu opinión durante la clase?

| Muy cómodo/a | Mas o menos cómodo/a | Un poquito cómodo/a | Nada de cómodo/a |
|---|---|---|---|
| O | O | O | O |

9. ¿Con qué frecuencia prestaste atención durante la clase?

| Nunca | Casi nunca | De vez en cuando | Seguido |
|---|---|---|---|
| O | O | O | O |

10. ¿Qué calificación le darías a el maestro/la maestra por la clase de hoy?

0 ----------1----------2----------3----------4----------5----------6----------7----------8----------9----------10

Necesita más entrenamiento — Desempeño esperado — ¡Fue una excelente maestra!

**Escribe tu respuesta.**

11. En tu opinión, ¿cuál fue el tema principal de la clase de nutrición?

_____

12. Qué cambiarías de la clase de nutrición para que fuera mejor para ti y tu familia:

_____

_____

_____

13. Qué cambiarías de la clase de ejercicio para que fuera mejor para ti y tu familia:

_____

_____

_____

**¡Gracias por compartir!**

# APPENDIX J

## ENGLISH POST CLASS PARTICIPANT SURVEY

**Participant Class Post Survey**

**Class Number:** _____ **Date:** _____

**Circle One:** I am a parent, guardian, or 17 years old or older I am between 10 to 16 years old

**What time is your nutrition class? (Circle one)** 5:30 PM 6:30 PM

**Circle the number on the scale that reflects your answer:**

1. On a scale of 1 to 10, how fun was today's nutrition class?

0 ----------1----------2----------3----------4----------5----------6----------7----------8----------9----------10

Boring Average Very fun

2. On a scale of 1 to 10, how fun was today's exercise class?

0 ----------1----------2----------3----------4----------5----------6----------7----------8----------9----------10

Boring Average Very fun

3. On a scale of 1 to 10, would you recommend this class to a friend?

0 ----------1----------2----------3----------4----------5----------6----------7----------8----------9----------10

Definitely not Probably Definitely

**Fill in the bubble to answer the question:**

4. Do you feel that the topics discussed in today's nutrition class could help you and your family be healthy?

No ○ Maybe ○ Yes, a little ○ Yes, a lot ○

5. Did the nutrition teacher seem rushed to cover the class material?

No ○ A little ○ Yes ○

6. Today's nutrition class time was:

Too short ○ Just right ○ Too long ○

**Please complete the other side →**

**Participant Class Post Survey**

7. Did the teacher pay attention to you when you spoke in class?

| No | A little | Yes |
|---|---|---|
| O | O | O |

8. How comfortable did you feel sharing your opinion during class?

| Very comfortable | Somewhat comfortable | A little comfortable | Not comfortable |
|---|---|---|---|
| O | O | O | O |

9. How often did you pay attention during class?

| Never | Rarely | Occasionally | Often |
|---|---|---|---|
| O | O | O | O |

10. What rating would you give your teacher for today's class?

0 ----------1----------2----------3----------4----------5----------6----------7----------8----------9----------10

Teacher needs more training — Teacher was average — Best teacher ever!

**Write a short answer.**

11. In your opinion what was the main point of the nutrition class?

_____

12. What would you change about the nutrition class to make it better for you and your family:

_____

_____

_____

13. What would you change about the exercise class to make it better for you and your family:

_____

_____

_____

**Thank you for sharing!**

# APPENDIX K

## FACILITATOR CLASS EVALUATION FORM

**Facilitator Evaluation Form**

**Date**_____ **Facilitator ID** _____

**Class Name** _____

**Facility Location** _____

**Answer the following questions about the class:**

1. Was the facility adequately prepared for today's class delivery? **(Circle One)**

Yes No

1a. If no, in what ways could the facility have been better prepared?

_____

_____

_____

2. How often did ALL the family members participate in the class? **(Fill in the bubble with your answer)**

| All the time | Most of the time | Little of the time | None of the time |
|---|---|---|---|
| ○ | ○ | ○ | ○ |

3. Were parts of the class difficult to facilitate or unclear in the curriculum? **(Circle one)**

Yes No

3a. If yes, which ones and what could have made them easier to facilitate?

_____

_____

_____

**Please complete the other side →**

**Facilitator Evaluation Form**

4. Did you have enough time to deliver the class as structured in the curriculum? **(Circle one)**

Yes No

4a. If no, what factors contributed to this and do you have any recommendations to allow for enough time?

_____

_____

_____

5. Was there any information missing from the curriculum or were there missing materials to be able to deliver the class effectively? **(Circle One)**

Yes No

5a. If yes, what was missing?

_____

_____

_____

6. Please add any other comments or suggestions that you feel may help improve the class.

_____

_____

_____

**Thank you for your feedback!**

# APPENDIX L

## OBSERVER CLASS EVALUATION FORM

**Observer Class Evaluation Form**

**Observer Name**_____ **Date**_____

**Facilitator Name**_____

**Class Name:** _____

**Class Start Time:**_____ **Class End Time:** _____

| | | |
|---|---|---|
| ***OBSERVER: Please review the nutrition curriculum and this evaluation form prior to class and fill in the Activity/Discussion names. The number of activities/discussions in each class varies.** | | |
| **Circle whether the facilitator completed the following and answer the questions below:** | | |
| **Welcome/Introduction** | | |
| Did the facilitator(s) introduce herself/himself? | Yes | No |
| **Class Objectives** | | |
| Did the facilitators review the purpose of today's class with the families? | Yes | No |
| **Activity/Discussion:**<br>_____<br>*(Write activity or discussion name)* | | |
| Use this space to write any quotes participants state throughout this activity that reflect engagement or lack of engagement: | | |
| | | |

1

| | | |
|---|---|---|
| Did the facilitator provide clear instructions for this activity/discussion? | Yes | No |
| Did the families demonstrate an understanding of this activity/discussion? | Yes | No |
| Did the facilitator provide an opportunity for family members to ask questions? | Yes | No |
| Was the facilitator able to establish rapport with everyone in the family? | Yes | No |
| Did every family member participate in this activity/discussion? | Yes | No |
| Circle *yes* or *no* for the following statements, this activity/discussion was: | | |
| • Culturally appropriate | Yes | No |
| • Focused on the family | Yes | No |
| • Too long | Yes | No |
| • Too short | Yes | No |
| • Too didactic | Yes | No |
| The facilitator was well prepared to deliver this discussion/activity | Yes | No |
| **Activity/Discussion:**<br><br>_____<br>*(Write activity or discussion name)* | | |
| Use this space to write any quotes participants state throughout the activity that reflect engagement or lack of engagement: | | |
| | | |
| Did the facilitator provide clear instructions for this activity/discussion? | Yes | No |
| Did the families demonstrate an understanding of this activity/discussion? | Yes | No |
| Did the facilitator provide an opportunity for family members to ask questions? | Yes | No |
| Was the facilitator able to establish rapport with everyone in the family? | Yes | No |

| | | |
|---|---|---|
| Did every family member participate in this activity/discussion? | Yes | No |
| Circle *yes* or *no* for the following statements, this activity/discussion was: | | |
| • Culturally appropriate | Yes | No |
| • Focused on the family | Yes | No |
| • Too long | Yes | No |
| • Too short | Yes | No |
| • Too didactic | Yes | No |
| The facilitator was well prepared to deliver this discussion/activity | Yes | No |
| **Activity/Discussion:**<br><br>_____<br>*(Write activity or discussion name)* | | |
| Use this space to write any quotes participants state throughout the activity that reflect engagement or lack of engagement: | | |
| | | |
| Did the facilitator provide clear instructions for this activity/discussion? | Yes | No |
| Did the families demonstrate an understanding of this activity/discussion? | Yes | No |
| Did the facilitator provide an opportunity for family members to ask questions? | Yes | No |
| Was the facilitator able to establish rapport with everyone in the family? | Yes | No |
| Did every family member participate in this activity/discussion? | Yes | No |
| Circle *yes* or *no* for the following statements, this activity/discussion was: | | |
| • Culturally appropriate | Yes | No |
| • Focused on the family | Yes | No |
| • Too long | Yes | No |
| • Too short | Yes | No |
| • Too didactic | Yes | No |
| The facilitator was well prepared to deliver this discussion/activity | Yes | No |

| Class Wrap-Up | | |
|---|---|---|
| Did the facilitator review the homework? | Yes | No |
| Did the facilitator provide closure to the class? | Yes | No |
| Did the facilitator distribute the class evaluation forms to all participants over the age of 10? | Yes | No |

**Is there anything you would change about the class?**

| |
|---|
| |

# APPENDIX M

# SPANISH FOCUS GROUP GUIDE

**Every Little Step Counts (ELSC)**

**In-Depth Focus Group Guide - *Spanish***

Nuestro grupo de enfoque tiene tres objetivos:

(1) Entender como la familia Latina percibe el programa de prevención de diabetes adaptado para familias latinas.
(2) Aprender acerca de las experiencias de la participación de cada miembro de la familia en el programa.
(3) Explorar obstaculos que miembros de la familia encontraron para poder participar en el programa.

**INTERVIEWER**: _____**DATE:** _____ **LOCATION:** _____

Bienvenidos! Gracias por su participacion en este grupo de enfoque. Mi nombre es (*Focus group facilitator name*) y trabajo en Arizona State University. Por favor vea este grupo como una conversación. Estamos organizando este grupo de enfoque porque estamos interesados en aprender más acerca de sus experiencias en el programa, Cada Pasito Cuenta con el enfoque en la familia, y cómo podemos mejorarlo para que todos los miembros de la familia puedan participar. No hay respuestas correctas o incorrectas. Lo que piensen y crean es importante para nosotros. Sus experiencias, preocupaciones y emociones también son importantes para nosotros. Por favor, siéntase libre de hablar abiertamente y decir lo que cree. Su honestidad nos ayudará a comprender su experiencia durante su tiempo en el programa.

Recuerde que su participación en el grupo de enfoque de hoy es voluntaria. Puede terminar esta conversación en cualquier momento sin ninguna penalidad. Nuestra conversación grupal durará entre 45 minutos y una hora. Al final de nuestra conversación, se le pedirá que complete una breve encuesta. Al final de esta encuesta, recibirá $50 por su participación. ¿Alguien tiene preguntas acerca de la compensación?

Antes de comenzar, me gustaría repasar algunas reglas:

- Solo una persona puede hablar a la vez. Eso significa que tendrían que esperar su turno o levantar la mano para hablar si uno de sus compañeros(as) esta hablando.
- Como parte de la confidencialidad, lo que compartimos en este espacio, permanecera en este espacio, y solo usaremos un pseudo nombre (por ejemplo, Participante 1) para propositos de la investigación.
- Es importante para nosotros escuchar las experiencias, ideas y opiniones de todos. No hay respuestas correctas o incorrectas a nuestras preguntas; sus ideas, experiencias y opiniones son importantes.
- Este es un espacio que resalta el respeto por los demás. Valoramos y estamos interesados en escuchar tanto lo positivo como lo negativo de su experiencia con el programa de Cada Pasito Cuenta.

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Estamos grabando esta conversación para estar seguros de que no nos estamos perdiendo la información que estan compartiendo. La grabacion de audio se destruirá después de que se complete la transcripción escrita palabra por palabra (generalmente dentro de los seis meses). Lo que compartimos en esta sala es solo para fines de investigación. Además, solo yo, los miembros del equipo y los investigadores involucrados en este proyecto escucharemos este audio. No se vincularán nombres a sus conversaciones ni a ninguno de sus comentarios. Esta información se utilizará únicamente para nuestros fines de investigación y nos ayudará a mejorar el programa Cada Pasito Cuenta.

Para asegurarnos de que cada uno de ustedes tengan la oportunidad de hablar y participar, podemos llamarlo por su pseudo nombre para que pueda participar y compartir sus pensamientos o experiencias con el grupo.

Gracias, de nuevo, por estar aquí. Agradecemos su tiempo y cooperación. ¡Empecemos!

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**Ice Breaker/Rompe-hielo**

[The objective of this activity is to do something as a group to build rapport]

[Once all participants have arrived the session will begin]

**Moderator:** "Empecemos yendo alrededor del salón para conocernos mejor."

[Moderator will lead introductions and build rapport with participants using any questions below]

For example:

1. "Por favor, díganos un poco acerca de usted."

*(If a participant does not know what to say or only says one thing, then use questions below)*

(a) ¿Cuál es su nombre?
(b) **Solo padres:** ¿A qué se dedicas usted, en que trabaja?
(c) **Solo jóvenes:** ¿A dónde vas a la escuela?
(d) ¿De dónde es usted?

**Focus Group Questions**

[Icebreaker is now complete and everybody knows a little bit about each other. The moderator will now transition from the discussion-starter question to more specific questions and follow-up probing questions to learn about their experiences in the ELSC.]

**SECTION 1: Experiences in the Family-Focused ELSC**

[Participant Question #1]

**Moderator:** "Por favor, dígame, ¿cuál fue su parte favorita del programa Cada Pasito Cuenta enfocado en la familia?"

*[Wait for 3 or 5 seconds, if no one answers, then ask for Volunteers]*

[Could use the following prompts]:

- ¿Qué es lo que más recuerda de las clases?
- ¿Qué le llamó más la atención?
- What activities did you like the most?
- ¿Qué actividades le gustaron más?

To have participants elaborate more information, say the following:

*[Por favor, deme ejemplos]*

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*[Cuénteme más acerca de eso]*

**SECTION 2: Perceptions of the Family-Focused ELSC**

[Participant Question #2]

**Moderator:** "¿De que maneras involucró el programa a su familia?"

[Could use the following prompts]:

- ¿Qué actividades incluyeron a su familia??
- ¿Hubo alguien en su familia [que vive con usted] que no estuvo involucrado en el programa?
- ¿Qué recomendaciones tiene para que el programa involucre a su familia?

[Note to moderator: Family, defined as, all family members living in the household]

To have participants elaborate more information, say the following:

*[Por favor, deme ejemplos]*

*[Cuénteme más acerca de eso]*

[Participant Question #3]

**Moderator:** "¿Cómo involucró el programa la cultura y los valores de su familia?"

[Could use the following prompts]:

- ¿Qué actividades estaban relacionadas con la cultura de su familia?
- ¿Qué recomienda para que las actividades se relacionen mejor con la cultura de su familia?

To have participants elaborate more information, say the following:

*[Por favor, deme ejemplos]*

*[Cuénteme más acerca de eso]*

[Participant Question #4]

**Moderator:** "¿Qué cambiaría de las clases para mejorarlas?"

[Could use the following prompts]:

- ¿Qué cambiaría de la ubicación?
- ¿Qué cambiaría de la duración de las clases?
- ¿Y del día que se imparten las clases?

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- ¿Qué tal el horario de las clases?
- ¿Qué cosas cambiaría de las actividades?
- ¿Qué actividades no fueron útiles?
- ¿Qué actividades podrían otras familias no disfrutar?

To have participants elaborate more information, say the following:

*[Por favor, deme ejemplos]*

*[Cuénteme más acerca de eso]*

**SECTION 3: Exploring Barriers to Program Participation**

Some family members might not be able to attend classes for various reasons.

[Participant Question #5]

**Moderator:** "Para los miembros de su familia que viven en su hogar, ¿cuáles fueron algunas de las razones por las que no asistieron al programa?"

[Could use the following prompts]

a. Digame acerca de los miembros de su familia que no pudieron asistir a las clases.
    i. ¿Por qué no pudieron asistir?
    ii. Para los miembros de la familia que asistieron, ¿cuáles fueron algunas de las razones?

To have participants elaborate more information, say the following:

*[Por favor, deme ejemplos]*

*[Digame, ¿qué quiere decir con eso?]*

b. ¿Cuáles fueron algunos de los obstaculo que enfrentaron los miembros de su familia?
c. ¿De qué manera podría cambiar el programa para que los miembros de su familia puedan asistir?

**SECTION 4: Closing Statements**

[Participant Question #7]
**Moderator:** "¿Hay algo más que le gustaría compartir con nosotros que no le hayamos preguntado? "

**Moderator:** "Gracias a todos por compartir sus experiencias. Hemos terminado nuestra conversación y procederemos con la breve encuesta. Un miembro de nuestro equipo le entregará

su encuesta. Una vez que termine, se lo devolverá al miembro del equipo y le entregará sus $50. Después de eso, se puede retirar del salon.

¡Gracias por su tiempo y participación!"

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# APPENDIX N

## ENGLISH FOCUS GROUP GUIDE

**Every Little Step Counts (ELSC)**

**In-Depth Focus Group Guide**

Our focus group has three goals:

(1) To understand how the Latino family unit perceives the adapted diabetes prevention program for Latino families.
(2) To learn about the experiences of each family member's participation in the program.
(3) To explore barriers family members experience in order to participate in the program.

**INTERVIEWER**: _____**DATE:** _____ **LOCATION:** _____

Welcome! Thank you for agreeing to participate in this focus group. My name is (*Focus group facilitator name*) and I work at Arizona State University. Please think of this as a conversation. We are hosting this focus group because we are interested in learning more about your experiences in the family-focused Every Little Step Counts program and how we can improve the program so all family members can participate. There are no right or wrong answers. What you think and believe is important to us. Your experiences, concerns, and emotions are also important to us. Please, feel free to speak openly and say what you believe. Your honesty will help us understand your experience during your time in the program.

Please remember that your participation in today's focus group is voluntary. You may end this conversation at any time without penalty to you. Our group conversation will last 45 minutes to one hour. At the end of our conversation, you will be asked to fill out a brief survey. At the end of this survey, you will be given $50 for your participation. Does anybody have questions regarding the compensation?

Before we get started I would like to go over a few housekeeping rules.

- Only one person can talk at a time. That means the remaining youth/parents would need to wait for their turn or raise their hands to speak.
- As part of confidentiality, what we share in this room, stays in this room, and we will only use a pretend name (For example, Participant 1) for research purposes.
- It is important for us to hear everyone's experiences, ideas, and opinions. There are no right or wrong answers to our questions – your ideas, experiences, and opinions are important to us.
- This is a space that highlights respect for others. We value and are interested in hearing both the positive and the negative of your experience with the ELSC program.

We are recording this audio conversation so that we can be sure we are not missing any of the information that you share. The audiotape for the sessions will be destroyed after the word-by-word written transcription is complete (usually within six months). What we share in this room is for research purposes only. In addition, only I, team members, and the researchers involved in this project will listen to this audio. No names will be linked to your conversations or any of your

comments. This information will be used only for our research purposes and ultimately, will help us improve the Every Little Step Counts program.

To make sure each of you gets the chance to talk and participate, we may call you by a pseudo name so that you can participate and share your thoughts or experiences with the group.

Thanks, again, for being here. We appreciate your time and cooperation. Let's get started!

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**Ice Breaker**

[The objective of this activity is to do something as a group to build rapport]

[Once all participants have arrived the session will begin]

**Moderator:** "Let's start by going around the room and introducing ourselves."

[Moderator will lead introductions and build rapport with participants using any questions below]

For example:

1. "Please, introduce yourself"

*(If a participant does not know what to say or only says one thing, then use questions below)*

(a) What is your name?
(b) **Parent only:** What do you do for a living?
(c) **Youth only:** Where do you go to school?
(d) Where are you from?

**Focus Group Questions**

[Icebreaker is now complete and everybody knows a little bit about each other. The moderator will now transition from the discussion-starter question to more specific questions and follow-up probing questions to learn about their experiences in the ELSC.]

**SECTION 1: Experiences in the Family-Focused ELSC**

[Participant Question #1]

**Moderator:** " Please tell me, what was your favorite part of the family-focused Every Little Step Counts?"

*[Wait for 3 or 5 seconds, if no one answers, then ask for Volunteers]*

[Could use the following prompts]:

- What do you remember most about the classes?
- What caught your attention the most?
- What activities did you like the most?
- What part of the program did you enjoy most?

To have participants elaborate more information, say the following:

*[Please, give me examples]*

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- How about the timing of the classes?
- What things would you change about the activities?
- What activities weren't helpful?
- What activities might other families not enjoy?

To have participants elaborate more information, say the following:

*[Please, give me examples]*

*[Tell me more about that]*

**SECTION 3: Exploring Barriers to Program Participation**

Some family members might not be able to attend classes for various reasons.

[Participant Question #5]

**Moderator:** "For your family members living in your home, what were some of the reasons they did not attend the program?"

[Could use the following prompts]

a. Tell me about your family members who were not able to attend the classes?
    i. Why were they unable to attend?
    ii. For the family members that attended, what were some of the reasons?

To have participants elaborate more information, say the following:

*[Please, give me examples]*

*[Tell me, what do you mean by that?]*

b. What were some of the barriers that your family members faced?
c. In what ways could the program be changed to help your family members attend?

**SECTION 4: Closing Statements**

[Participant Question #7]
**Moderator:** "Is there anything else you would like to share with us that we may have not asked you?"

**Moderator:** "Thank you all for sharing your experiences. We have now finished our conversation and will proceed with the short survey. A staff member will hand you your survey. Once you finish, you will return it to the staff member and they will hand you your $50. After that, please feel free to leave the class."

Thank you again for your time and participation!

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